

Air

High sulphur dioxide emissions from the smelting of sulphide concentrates with high sulphur content are a key environmental issue for the Company.

Nornickel's strategic plan is to transform the Company into an environmentally clean and safe business by implementing Sulphur Project 2.0 across the Norilsk and Kola Divisions.

SULPHUR PROJECT 2.0 AT THE NORILSK DIVISION

Sulphur Project 2.0 at the Norilsk Division is expected to reduce sulphur dioxide emissions in the Norilsk Industrial District by 45% in 2023 and by 90% in 2025 (from a 2015 baseline). The project is implemented in phases at Nornickel's two core downstream facilities: Nadezhda Metallurgical Plant (completion date: 2023) and Copper Plant (2025).

In 2020–2021, a complete set of design documents was developed for the Nadezhda Metallurgical Plant site, with some of the process equipment manufactured and delivered to Norilsk. A large amount of construction and installation work was completed (excavation and concrete work, installation of metal structures, fences, core process equipment and pipelines, construction of overhead power lines and the gypsum storage facility dam, preparation of a transport corridor for transporting large and heavy equipment, etc.).

SO₂ emissions from the Kola Division decreased

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

SO₂ emissions from the Norilsk Division decreased

14% y-o-y

For the Copper Plant site, the necessary design documents were developed (operating procedures, basic engineering, and other design documentation) with the necessary expert reviews completed.

SULPHUR PROJECT 2.0 IN THE KOLA DIVISION

Following the closure of the smelting shop in Nikel in 2020 and the metallurgical shop in Monchegorsk in 2021, the total sulphur dioxide emissions by the Kola Division in 2021 were down 78% y-o-y and 90% from a 2015 baseline, exceeding the Company's strategic target of an 85% cut.

In 2021, the Group's pollutant emissions totalled 1.6 mln t, down 16% y-o-y. The decrease in emissions was primarily driven by lower processing volumes at the Norilsk Division due to constraints at Norilsk Concentrator and the temporary shutdown of flooded mines, as well as due to the scheduled closure of the metallurgical shop at the Kola Division in March 2021.

ENVIRONMENTAL MONITORING OF AIR

In 2021, the Company signed an agreement with the Russian Environmental Operator to pilot an automated air monitoring system at its enterprises and in residential areas of Norilsk. A network of 16 small-size sensors to monitor air quality was deployed across various districts of Norilsk in autumn. Their

TARGET:

improve air quality (reduce SO₂ and other pollutant emissions) in the regions of operation.

KEY NEXT STEPS:

deliver Sulphur Project 2.0 and other air emission reduction projects.

operation will be continuously supported by Edinstvo. Currently, a data collection and transmission system is in the pre-commissioning and testing phase to make data publicly available. As part of the Clean Air federal project, three Rosgidromet observation stations were also installed in the Tsentralny District of Norilsk in September 2021 to continuously obtain air quality and meteorological data.

The project will select the best technology solutions for transmitting air quality data online, with the tested principles and solutions to be subsequently rolled out to other cities participating in the Clean Air federal project within the Ecology national project. A hardware/software solution for online monitoring of SO₂ emissions was also installed at the Kola Division in Monchegorsk.

Air pollutant emissions across the Group (kt)

Item	2017	2018	2019	2020	2021
Across the Norilsk Nickel Group	1,847	1,927	1,953	1,968	1,647
Sulphur dioxide (SO ₂)	1,785	1,870	1,898	1,911	1,601
Nitrogen oxide (NO _x)	11	11	10	10	11
Particulate matter	14	15	13	15	9
Other pollutants	36	31	31	31	25
Norilsk Division	1,705	1,789	1,819	1,858	1,604
Sulphur dioxide (SO ₂)	1,676	1,765	1,799	1,837	1,585
Nitrogen oxide (NO _x)	2	1	1	1	1
Particulate matter	6	6	4	4	5
Other pollutants	22	18	16	16	13
Kola Division	122	117	111	83	20
Sulphur dioxide (SO ₂)	109	105	99	73	16
Nitrogen oxide (NO _x)	1	2	2	2	2
Particulate matter	7	8	7	6	1
Other pollutants	5	3	3	2	1
Trans-Baikal Division	-	-	3	5	3
Sulphur dioxide (SO ₂)	-	-	0	1	0
Nitrogen oxide (NO _x)	-	-	0	0	0
Particulate matter	-	-	2	3	2
Other pollutants	-	-	1	2	1
Other	20	20	20	22	20
Sulphur dioxide (SO ₂)	0	0	0	0	0
Nitrogen oxide (NO _x)	9	9	8	7	9
Particulate matter	1	1	0	2	0
Other pollutants	10	10	12	12	11

In 2021, total Group air pollutant emissions decreased

by **16% y-o-y**

Sulphur dioxide emissions across the Group (kt)

