

## ENVIRONMENTAL MANAGEMENT SYSTEM

In 2020, the Environmental Management System<sup>1</sup> (EMS) continued to operate as part of the Corporate Integrated Quality and Environmental Management System (CIMS) providing an opportunity to coordinate environmental and quality initiatives with other initiatives. This approach improves both overall and environmental performance of the Company.

## SYSTEM AUDIT

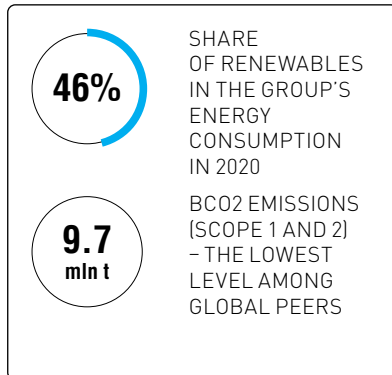
In line with ISO 14001:2015 and ISO 9001:2015, the Company confirms the EMS compliance with the standard by engaging Bureau Veritas Certification (BVC) to conduct surveillance audits once a year and recertification audits every three years. In December 2020, BVC auditors conducted a desk audit of the Corporate Integrated Quality and Environmental Management System and the Environmental Management System of PJSC MMC NORILSK NICKEL as part of a recertification

audit, which confirmed the Company's compliance with ISO 14001:2015 and ISO 9001:2015. The field recertification audit to be conducted at the Company's facilities is scheduled for March–April 2021.

During 2020, Nornickel also conducted internal and corporate audits involving specially trained and competent personnel. As a result, audits were conducted at the following sites of the Company:

- Head Office – 19 audits
- Polar Division – 20 audits
- Polar Transport Division – 38 audits
- Murmansk Transport Division – 3 audits
- Kola MMC – 25 audits

## CLIMATE CHANGE



In 2020, GHG emission targets to 2030 were set and a physical risk assessment was conducted.

In 2020, the Company implemented the following climate change initiatives:

- Made its first disclosures on GHG emissions and water discharges via the Carbon Disclosure Project questionnaire
- Disclosed its Scope 3 GHG emissions
- Set long-term climate change targets (until 2030)
- Assessed climate risks for the Company's product portfolio
- Started developing a monitoring system for buildings and structures located in permafrost areas and other initiatives to minimise the physical risks related to climate change.

### TARGETS TO 2030:

- Maintain GHG emissions (Scope 1 and 2) in absolute terms not higher than 10 mln t CO<sub>2</sub> equivalent from operations with a 30–40% increase in metal production (compared to 2017)
- Maintain GHG emissions (Scope 1 and 2) per tonne of Ni equivalent in the bottom quartile of the global GHG intensity curve for the nickel industry<sup>2</sup>
- Strive to increase low-carbon energy usage
- Manage climate-related risks by building resilience strategies and helping communities in the Norilsk industrial region and Murmansk region
- Encourage the shift to a low carbon future by using R&D to help develop new solutions and by engaging in cross-industry climate dialogue

### STRATEGY HIGHLIGHTS:

- Adoption of a programme to assess physical risks related to climate change and large site monitoring
- Implementation of energy efficiency initiatives and increased consumption of low-carbon energy
- Reduction of CO<sub>2</sub> emissions

Nornickel's Board of Directors considers the Company's climate change strategy as a matter of priority and is responsible for its review and approval.

<sup>1</sup> Based on the global GHG intensity curve for the nickel industry by Wood MacKenzie Group (CO<sub>2</sub> per tonne of Ni equivalent).

## CLIMATE RISK MANAGEMENT

Repercussions of climate change, including abnormal weather or lasting changes in weather patterns, may affect Nor Nickel's operations in the longer run. Physical consequences of climate change can include soil thawing, changes in water levels in water bodies, precipitation amounts and wind loads, which can have a material adverse effect on Nor Nickel's operations. As part of its Risk Management Strategy, Nor Nickel implements a full range of measures to monitor and control these risks, including the introduction of a system to monitor buildings and structures in the Norilsk Industrial District, and is engaged in:

- monitoring permafrost-based structures using satellite images and early detection of any possible deformations under an agreement with SOVZOND, the leading Russian space monitoring company
- evaluating supporting piles deformation and soil temperature by means of confirmative geological drilling
- installing strain gauges and temperature sensors
- upgrading the Polar Division's Diagnostic Centre and the permafrost laboratory.

Climate-related risks may also unlock additional opportunities for Nor Nickel driven by the strong demand for metals required in a future low-carbon economy. For example, nickel is a key component in EV batteries, and copper is used in EV charging infrastructure.

### Key climate change risks

**Insufficient water resources:** water shortages in storage reservoirs of Nor Nickel's hydropower facilities may

result in insufficient water head at HPP turbines leading to lower power output as well as drinking water shortages in Norilsk.

**Key risk factors:** abnormal natural phenomena (drought) caused by climate change.

Impact on Nor Nickel's development goal and strategy:

- Efficient delivery of finished products (metals) in line with the production programme
- Timely supply of products to consumers
- Social responsibility: comfort and safety of people living in Nor Nickel's regions of operation

Risk assessment:

- Impact on goals: medium
- Source of risk: external
- Year-on-year change in risk: stable

To manage this risk, Nor Nickel:

- implements a closed water circuit to reduce water withdrawal from external sources
- carries out regular hydrological observations to forecast water levels in rivers and other water bodies
- cooperates with the Federal Service for Hydrometeorology and Environmental Monitoring (Rosgidromet) on setting up permanent hydrological and meteorological monitoring stations in order to improve the accuracy of water level forecasts for major rivers across Nor Nickel's regions of operation
- dredges the Norilskaya River and prepares its production facilities for reducing their energy consumption in case of risk occurrence
- refurbishes its hydropower plants to increase power output through improving the hydroelectric units' performance (implementation period: 2012–2021).

**Permafrost thawing:** loss of bearing capacity by pile foundation beds may lead to deformation and collapse of buildings and structures.

**Key risk factors:** climate changes, average annual temperature increase over the last 15 to 20 years, increased depth of seasonal permafrost thawing.

Impact on Nor Nickel's development goal and strategy:

- Efficient delivery of finished products (metals) in line with the production programme
- Social responsibility: comfort and safety of people living in Nor Nickel's regions of operation

Risk assessment:

- Impact on goals: medium
- Source of risk: external
- Year-on-year change in risk: stable

To manage this risk, Nor Nickel:

- regularly monitors the condition of foundation beds underneath buildings and structures built on permafrost
- performs geodetic monitoring of the movement of buildings
- uses satellite technology to monitor Nor Nickel's assets and further analyse the data
- regularly monitors the condition of Nor Nickel's buildings and structures via an information system for conducting geotechnical surveys
- monitors soil temperature in buildings' foundations
- monitors the compliance of its facilities with operational requirements for crawl spaces
- takes corrective actions to ensure safe operating conditions for buildings and structures.

## GHG EMISSIONS

In 2020, GHG emissions (Scope 1 and 2) totalled about 9.7 mln t. GHG emissions decreased in 2020 on the back of lower production volumes at the Polar Division, reduced fuel consumption by the Company's own air carriers as a result of restrictions imposed due to the COVID-19 pandemic, and the shutdown of metallurgical production at Kola MMC.

Nornickel's key production facilities are located in the Norilsk Industrial District, beyond the Arctic Circle, and operate in sub-zero temperatures for about eight months of the year. Since the Norilsk Industrial District is isolated from the federal energy infrastructure, Nornickel generates electricity and heat locally at its own generating facilities (100% owned by the Group). As a result, the bulk of GHG emissions comes from the Company's energy assets. At the same time, as Nornickel is the only producer of electricity and heat in the Norilsk Industrial District, the Company also fully meets the demand for energy resources and heat from social infrastructure facilities and the local population. The share of GHG emissions generated by infrastructure facilities and households in Nornickel's regions of operation is on average 8% of the total Scope 1 and 2 GHG emissions.

The goal by 2030 is to retain GHG emissions (Scope 1 and 2) from production below 10 mln t of CO<sub>2</sub> equivalent despite production growth and the launch of Sulphur Programme 2.0.

In 2020, the Company quantified indirect GHG emissions (Scope 3) in accordance with the GHG Protocol, including emissions associated with product transportation from the Company's production assets to the customer and first use of the product. Total Scope

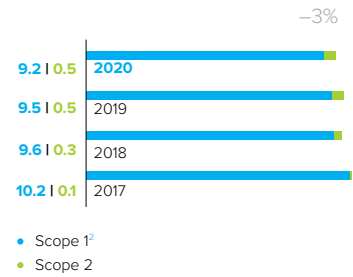
3 downstream GHG emissions in 2020 amounted to 2.6 mln t. Indirect GHG emissions (Scope 3) increased in 2020 due to the ramp-up to design capacity of Bystrinsky GOK, which boosted the production and sales of iron ore concentrate with its relatively high carbon footprint from first use.

## RENEWABLES AND ENERGY EFFICIENCY

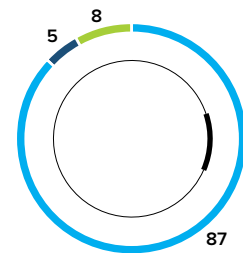
Since its inception in 1935, the Company has been developing in a harsh climate, given that its major production asset, the Polar Division, is located in the Norilsk Industrial District beyond the Arctic Circle. As such, this remote region has never been connected to Russia's energy and transport infrastructure. Therefore, the Company has historically been self-sufficient in building its operations, including in terms of electricity/energy generation and transmission. Natural gas is the core low-carbon source for power generation in our largest Norilsk Division, which is used to generate about 76.5% of electricity consumed, with hydro power accounting for close to 23.5%. Diesel fuel, fuel oil, petrol and jet fuel are used by Nornickel's transport assets. Use of high-carbon fuel by energy assets is minimised. Only small amounts of coal are used in certain production processes.

The Company's key renewable energy source is hydropower generated by the Group's Ust-Khantayskaya and Kureyskaya HPPs. In 2020, renewables accounted for 46% of total

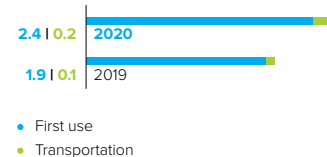
### GHG EMISSIONS (MLN T CO<sub>2</sub> EQUIVALENT)<sup>1</sup>



### GHG EMISSIONS BROKEN DOWN BY SOURCE IN 2020 (%)



### SCOPE 3 DOWNSTREAM GHG EMISSIONS ESTIMATE (MLN T)



FOR MORE DETAILS, PLEASE SEE [NORNICKEL'S THE SCOPE 3 DOWNSTREAM GHG EMISSIONS REPORT](#)



<sup>1</sup> GHG emissions were calculated as per the GHG Protocol Guidelines. When calculating GHG emissions across the Group, the following greenhouse gases were taken into account: carbon oxide (CO<sub>2</sub>), nitrogen oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>). Direct methane emissions (coming mostly from gas transportation units) represent a small share of total emissions and amount to about 150 ktpa of CO<sub>2</sub> equivalent. Based on the inventory results, the data for 2018 and 2019 were recalculated in 2020.

<sup>2</sup> Nornickel's GHG emissions include emissions from supplying electricity to Norilsk through NTEK, along with potential CO<sub>2</sub> emissions from Sulphur Programme 2.0.

electricity consumed by the Group and 55% of total electricity consumption within the Norilsk Industrial District.

The use of other renewables, such as solar, geothermal and wind energy, is impracticable as Nornickel's core production assets are located beyond the Arctic Circle in the Norilsk Industrial District, in harsh climatic conditions. Overall, the Group's own energy assets (including Kola MMC and other assets that mainly purchase electricity from third parties) generate about 84% of total electricity consumed by the Group. The Group also supplies electricity

and heat to external consumers, primarily local social infrastructure and communities in the Norilsk Industrial District.

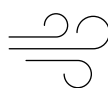
Nornickel is committed to the responsible use of heat and electricity. In 2020, our electricity and fuel consumption decreased due to lower metal production by the Norilsk Division, discontinued metallurgical operations at Kola

MMC and reduced air transportation by the Group's own air fleet due to transportation restrictions caused by the COVID-19 pandemic.

## CLIMATE IMPACT ON THE USE OF RENEWABLES BEYOND THE ARCTIC CIRCLE



Air temperatures stay below freezing point for about eight months a year



Strong gusts of wind with speeds of up to 50 m/s are followed by dead calms lasting for weeks



Polar nights and twilights last for more than 100 days



On average, there are no more than 70 sunny days per year



Permafrost is 300 to 500 metres deep



Soils and ice are prone to seasonal thawing

## ENERGY GENERATION AND CONSUMPTION BY THE GROUP (TJ)<sup>3</sup>

No.	Indicator	2016	2017	2018	2019	2020
1	Fuel consumption by the Company <sup>4</sup>	172,425	156,569	148,910	144,772	141,237
	• natural gas	151,081	134,709	129,335	125,329	122,216
	• diesel fuel and fuel oil	15,423	15,221	13,788	13,535	13 939 <sup>5</sup>
	• petrol and jet fuel	3,789	5,178	4,127	3,820	2,902
	• coal <sup>6</sup>	2,132	1,460	1,660	2,087	2,180
2	Electricity and heat from own renewable sources (HPPs)		12,414	14,877	15,058	15,310
3	Electricity and heat purchased from third parties		10,483	10,931	11,331	11,200
4	Sales of electricity and heat to third parties		19,503	18,926	18,766	17,254
5	<b>Total consumption of electricity and fuel (1 + 2 + 3–4)</b>		<b>159,962</b>	<b>155,792</b>	<b>152,395</b>	<b>150,493</b>

<sup>3</sup> For a detailed breakdown of the Group's energy consumption by company, please see the 2020 Sustainability Report.

<sup>4</sup> Including the fuel used to generate electricity for Norilsk.

<sup>5</sup> Including the diesel fuel spill in May 2020.

<sup>6</sup> Coal is only used in production processes, with Kola MMC accounting for 46% of total consumption, GRK Bystrinskoye 25%, the Polar Division 15%, Norilsk Production Support Complex 10%, and other subsidiaries 4%.

The Group attaches great importance to improving the energy efficiency of its existing and future production sites, focusing on retaining GHG emissions within the declared targets under its comprehensive environmental programme. The programme provides for investing close to USD 4 billion in upgrading and boosting the safety of the energy infrastructure on the Taimyr Peninsula in 2021–2025. The investments will cover a wide range of projects related to equipment replacement at thermal and hydropower plants, and upgrade of fuel tank storage facilities, power grids and gas pipelines.

Major projects completed in 2020 include:

- replacement of a turbine at Ust-Khantaiskaya HPP
- replacement of the main step-down substation supplying electricity to the South Cluster.

Fuel equivalent savings in 2020 totalled 10,778 t of fuel equivalent, and 7,879 thousand kWh of electricity, with 40 energy saving initiatives implemented.

In 2020, fuel consumption per unit of electricity supplied by CHPPs was 284 g/kWh, that is 7.8 g/kWh lower than the target level.

