

Greenhouse gas emissions

Scope 3 Downstream

PJSC “MMC “Norilsk Nickel”

Greenhouse gas emissions



The Company’s contribution to global climate change is related to greenhouse gas emissions, both from the Company’s own production processes and from subsequent life-cycle processes of its products, which include transportation from the Company’s production division to the buyer and subsequent processing by the buyer (Scope 3 Downstream).

Accounting for these emissions provides stakeholders with the most complete information on the Company’s role in achieving the climate goals set by the Paris Agreement.

Scope 3 Downstream assessment of greenhouse gas emissions



The Company quantified GHG emissions from transportation and refining processes for 2020.

The following types of products were included in the valuation area: copper, nickel, cobalt, PGMs¹, copper and nickel semi-products, as well as iron ore concentrate.

A process approach was used to estimate emissions from product refining. Greenhouse gas emissions were estimated based on information on FER² consumption in the manufacturing processes of buyer companies. The source of information was Russian and European standards and BAT³ reference books.

Process-based approach



Analysis of buyer companies

- Types of products produced
- Product application industry
- Production structure
- Geographic location



Analysis of production processes

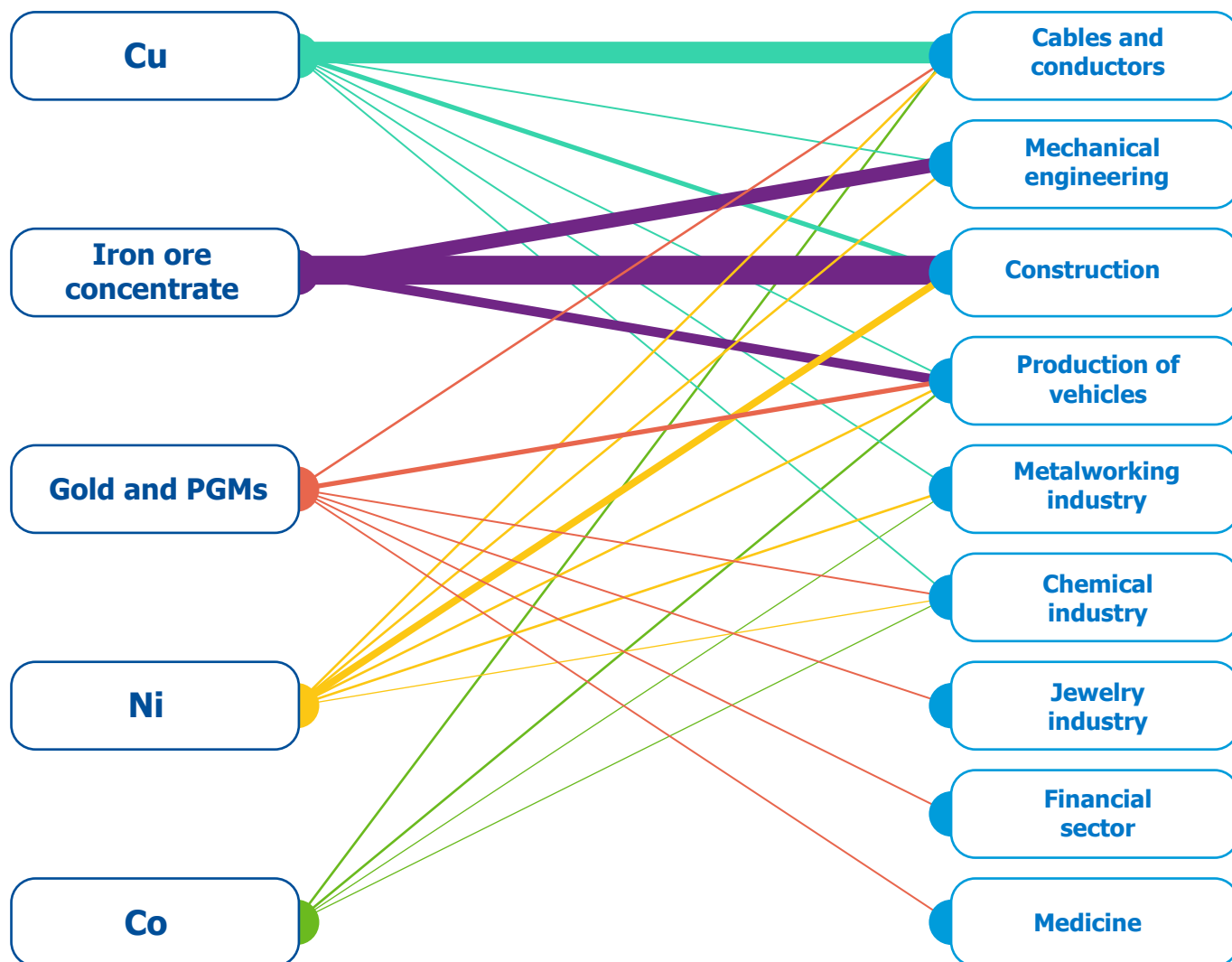
- Types of production processes
- Sources of greenhouse gas emissions
- Types of FER² used

¹ This category covers platinum group metals (platinum, palladium, rhodium) and gold.

² Fuel-and-energy resources.

³ Best available technology.

Industry structure of Nornickel products¹



¹ The material flow is indicated in the mass of pure metal. Data include the use of Nornickel metals and semi-products.

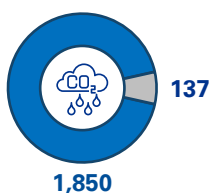
Quantification of emissions for 2019



2 million metric tons CO₂e

Total GHG emissions
Scope 3 Downstream

thousand metric tons CO₂e



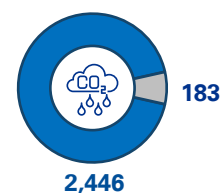
Quantification of emissions for 2020



2.6 million metric tons CO₂e

Total GHG emissions
Scope 3 Downstream

thousand metric tons CO₂e



● Processing of sold products

● Transportation

Emissions from the processing of sold products for 2020



Greenhouse gas emissions related to the processing of Nornickel products were quantified in accordance with the international methodological document – **GHG Protocol**.

Within this category, the emissions of primary processing of products sold by Nornickel were quantified.

Results of the assessment of emissions from the processing of sold products:

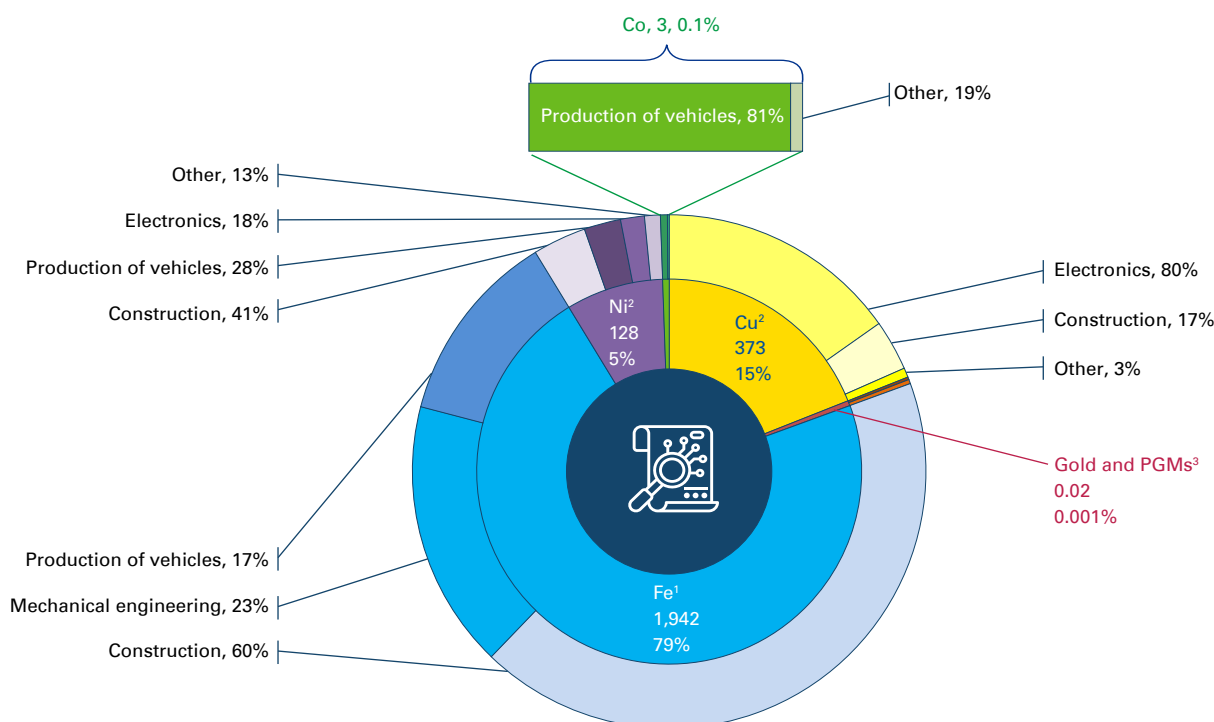
1

Total GHG emissions were **2.45 million tons CO₂e**; of these, from metal processing: **0.25 million tons CO₂e**, and from semi-products processing: **2.2 million tons CO₂e**.

2

The main contribution to the Company's emissions is iron ore concentrate, which is an intermediate product, the process of further refining of which – steel smelting – is highly carbon-intensive. The processes of further refining of the remaining Nornickel products, represented mainly by finished metals, are much less carbon intensive.

Emissions from product processing, thousand tons CO₂e



¹ Fe – iron ore concentrate.

² Categories of Cu and Ni cover emissions from both metal processing and processing of copper and nickel semi-products, respectively.

³ This category covers platinum group metals (platinum, palladium, rhodium) and gold.

Emissions from transportation of sold products for 2020



Transportation includes both Nornickel-controlled transportation of products and buyers’ transportation, and covers the entire route from Nornickel to buyers’ sites.

Results of the assessment of emissions from transportation of products:

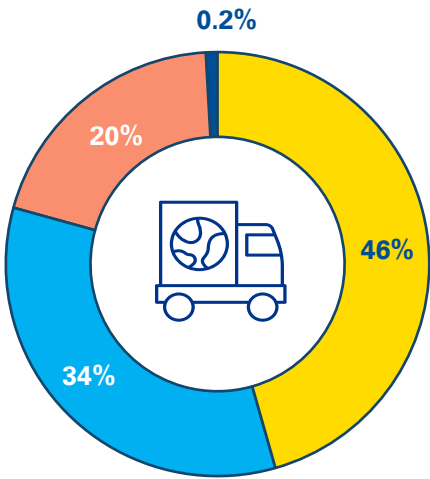


Rail transport contributes the most to transportation emissions (**over 84 thousand tons CO₂e**). This is due to the significant volume of products transported by this mode of transport in Russia and China.



Only precious metals are transported by air due to the lower overall volume of supplies and the significant value of this type of product.

Allocation of emissions from transportation of products



- Railway transportation
- Trucking
- Sea transportation
- Air transportation

Conclusions from the quantification of GHG emissions Scope 3 Downstream:



The structure and volume of the Company’s product portfolio result in low Scope 3 Downstream emissions compared to global mining and metallurgical companies.



The Scope 3 Downstream GHG emissions are influenced by the following factors: types of processes used in the refining of products, geographical location of the buyers’ sites.



The Company intends to assess GHG emissions of Scope 3 Downstream on a regular basis and in accordance with the principle of continuous improvement of the calculation.