

TRANSPORT ASSETS

Nornickel owns a modern transport infrastructure capable of handling most challenging freight logistics tasks and ensuring continuity and sustainability of operations. Nornickel's transportation and logistics assets cover the full range of transportation and freight forwarding services.

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|---|---|--|---------------------------------|
| 1 Murmansk Transport Division (Murmansk terminal, 6 heavy-duty ice-class vessels) | 3 Norilsk Airport, Norilsk Avia, NordStar Airlines (100% stake) | 5 Krasnoyarsk Transport Division, Krasnoyarsk River Port (89% stake) and Nornickel-ERP LLC | 7 Bystrinsky Transport Division |
| 2 Arkhangelsk Transport Division | 4 Polar Transport Division (Dudinka Port) | 6 Yenisey River Shipping Company (82% stake) | 8 Lesosibirsk Port (51% stake) |



FREIGHT SHIPPING SERVICES

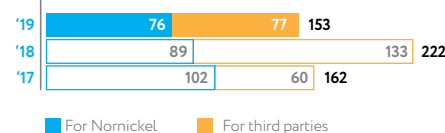
Nornickel has a unique Arctic fleet comprising five dry cargo vessels and one Yenisey heavy-duty ice-class tanker (ARC 7 as per the classification of the Russian Maritime Register of Shipping). The vessels are capable of breaking through Arctic ice up to 1.5 m thick without icebreaker support. The Yenisey tanker carries gas condensate exports from the Pelyatkinskoye gas condensate deposit to European ports, and makes commercial voyages to other destinations.

Nornickel's dry cargo fleet provides year-round freight shipping services between Dudinka, Murmansk, Arkhangelsk, Rotterdam, and Hamburg sea ports while also making commercial voyages to other destinations. In 2019, 68 voyages were made from Dudinka (2018:66), including 11 direct voyages to European ports (2018:10).

Dry cargo transportation by Nornickel's fleet
(mln t)



Transportation by Yenisey tanker (kt)



AVIATION ASSETS

Norilsk Avia (Nornickel interest 100%) serves the transportation needs of local communities in the Norilsk and Taimyrsky Dolgano-Nenetsky Districts of the Krasnoyarsk Region. The air company has its own fleet of 16 helicopters and provides air services related to the operations of the Norilsk Nickel Group, emergency air medical assistance, search-and-rescue operations, and local passenger traffic.

NordStar Airlines (Nornickel interest 100%) is an aviation project that has been steadily growing since its establishment in 2008. Its fleet comprises 13 aircraft. NordStar Airlines is a major air carrier in the Siberian Federal District and the anchor airline of Norilsk Airport. The air carrier's annual passenger

traffic is in excess of one million people. The airline's current route network covers over 30 cities in Russia and the CIS..

Norilsk Airport (Nornickel interest 100%) is located 36 km away from Norilsk. It plays an essential role in ensuring the region's transport accessibility as it connects the north of the Krasnoyarsk Region with other parts of Russia.

During 2019, the public private partnership between Nornickel and the Federal Air Transport Agency (Rosaviatsiya) renovated the airport's patrol road, security fencing, utility and communication networks; and the renovation of the airport apron's concrete pavement was 95% complete at end-2019.

The renovation programme is scheduled for completion in 2020.

Norilsk Nickel's transportation and logistics assets include:

- sea fleet — 6 heavy-duty ice-class vessels;
- river fleet — 556 vessels, including 161 self-propelled and 395 towed vessels;
- rail car and locomotive fleet — 118 container flatcars, 1 switch locomotive, 1 Yermak electric locomotive, and 1 2M62 diesel locomotive;
- aircraft fleet — 16 helicopters operated by Norilsk Avia and 15 planes operated by NordStar Airlines.

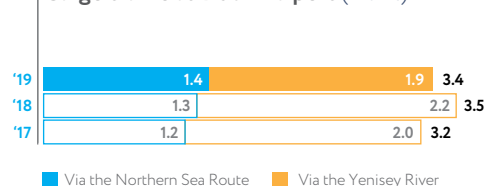
TRANSPORT DIVISIONS AND PORTS

The Polar Transport Division and Dudinka Port are the key industrial facilities of the city port of Dudinka, accessible by both sea and river vessels.

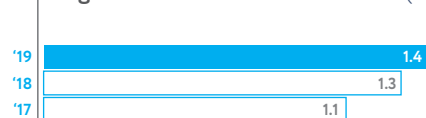
Located in the Far North, Dudinka Port is the world's only port that gets flooded every year during the spring thaw. From November to May its water area and the Yenisey River freeze over. At this period, Dudinka Port handles only sea vessels using icebreakers to de-ice the berths and provide support during manoeuvring and mooring operations. In May and June, during the flooding, the service is suspended to be resumed for sea and river vessels when ice flows pass and the water level goes down.

Dudinka Port transships cargoes destined for Taimyr Peninsula, including goods for local residents (except for perishables and mail). In summer, river vessels deliver equipment and materials (sand, round timber, clinker, etc.) for process needs from Krasnoyarsk and Lesosibirsk; sulphur shipments are directed both via the Yenisey River and via sea routes. Converter matte and metal products are shipped by sea from Dudinka throughout the year.

Cargo traffic at Dudinka port (mln t)



Cargo traffic at Murmansk terminal (mln t)



The Polar Transport Division operates its own fleet of port service vessels which includes a river-class icebreaker, towboats, motorboats, a bunker barge, and a floating crane. To reduce its environmental footprint, the division runs programmes to cut fuel consumption and prevent pollution of the Dudinka and Yenisey Rivers, while also investing in bioresource management (e.g. releasing fingerlings).

The year-round ice-free sea port of Murmansk is home to Nornickel's **Murmansk Transport Division**. Murmansk Transport Division's key functions:

- Shipment of Nornickel's finished metal products from Murmansk to European ports
- Receipt of converter matte from Dudinka and its shipment by rail to Kola MMC
- Shipment of empty containers, equipment, and materials to Dudinka

In addition to sea transportation, Murmansk Transport Division is focused on freight forwarding, transshipment and storage of cargoes, and rail transportation between Murmansk and Monchegorsk.

The division's shipping department complies with international maritime conventions by ensuring environmentally friendly and safe sea transportation, with the vessels undergoing regular scheduled repairs and safety inspections. In addition, in 2019, Murmansk Transport Division's Information Security Management System was certified to ISO/IEC 27001:2013.

Arkhangelsk Transport Division is based in Arkhangelsk. The division provides year-round transshipment services for Nornickel's cargo via Arkhangelsk sea port, which is conveniently linked to other Russian and foreign regions by road, air and rail.

Krasnoyarsk Transport Division is based in Krasnoyarsk. This division is responsible for transportation and forwarding of Nornickel's.

In 2019, **Nornickel- Yenisey River Shipping Company** (100%) was established to coordinate operations of Krasnoyarsk port and Yenisey River Shipping Company, which operate a strictly seasonal service due to the Yenisey River getting frozen in winter. When ice flows pass, the Group uses the ports to transship Nornickel's cargoes to Dudinka, including crushed granite, clinker, materials, equipment, and socially significant cargoes (as part of the Northern Deliveries programme).

Yenisey River Shipping Company (82%) carries the bulk of the Group's and third-party cargoes shipped on the Yenisey River. The company owns over 600 river vessels, including self-propelled and towed ones. The fleet operates in the Yenisey, Angara, Nizhnyaya Tunguska and Podkamennaya Tunguska Rivers, and their largest tributaries.

Krasnoyarsk River Port (89%) is one of the largest ports in the Yenisey basin. The port transships cargoes delivered by road, rail and water, provides storage services and transports cargoes using private railway lines. The port has three operating areas – Yenisey, Zlobino, and Peschanka.

Lesosibirsk Port (51%) is located 40 km downstream of the point of confluence of the Angara and Yenisey Rivers and downstream of the hard-to-navigate rapids. This secures the delivery of Nornickel's cargoes at times of low water on the Yenisey and the use of fully loaded ships. The port's unique benefits:

- The only dedicated port on the Yenisey River capable of handling explosives with a storage option

- Offers year-round service (rail-to-road and road-to-rail cargo transshipment services in between the navigation periods)
- Has access to the Baikal (M53) federal highway via the Krasnoyarsk–Yeniseysk highway
- A railway to Achinsk links Lesosibirsk to the Trans-Siberian Railway.

Bystrinsky Transport Division was established in 2017 to support shipments of finished products from Bystrinsky GOK and handle its inventories. Bystrinsky Transport Division provides maintenance services for the 227-km Naryn (Borzya)–Gazimursky Zavod private railway line built through a public private partnership.

INVESTMENT IN TRANSPORTATION AND LOGISTICS ASSETS

In 2019, Nornickel completed scheduled repairs of vessels, overhauled several berths and port cranes, deployed integrated security technologies and solutions, upgraded communications hardware, introduced fuel consumption metering, and launched a programme to replace mobile port cranes at Dudinka Port.

Investment in transportation and logistics assets

Expenditure	2017		2018		2019	
	USD mln	RUB bn	USD mln	RUB bn	USD mln	RUB bn
TOTAL	46.2	2.7	35.1	2.2	55.6	3.6
Capital construction	22.2	1.3	6.4	0.4	3.1	0.2
Equipment purchases	15.4	0.9	12.8	0.8	40.2	2.6
Other	8.6	0.5	15.9	1.0	12.4	0.8