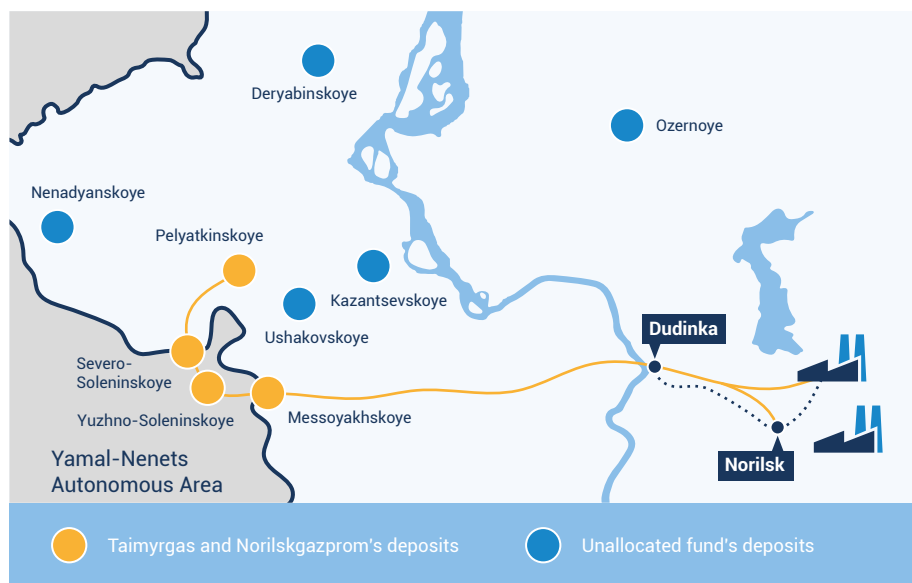


ENERGY ASSETS



Most of Nornickel's production sites are located beyond the Arctic Circle with sub-zero temperatures during eight months of the year. It is therefore critical for the Group to ensure reliable and high-quality energy supplies to its production and infrastructure facilities and communities in the regions where it operates. The Company owns an integrated network of fuel and energy assets.

4 hydrocarbon deposits

2,896 mcm
 natural gas production

90 kt
 gas condensate production¹

43.6%
 electricity generated from renewable sources

Taimyrgaz (100% stake)

Upstream

Pelyatkinskoye Deposit

- Start of production: 2003
- Gas reserves: 127 bcm
- Gas condensate reserves: 3,608 kt
- Gas output in 2018*: 2 bcm
- Gas condensate output in 2018¹ – 88 kt

Norilskgazprom (100% stake)

Upstream

Severo-Soleninskoye, Yuzhno-Soleninskoye and Messoyakhskoye deposits

- Start of production: 1969
- Gas reserves: 115 bcm
- Gas condensate reserves: 1,081 kt
- Gas output in 2018*: 869 mcm
- Gas condensate output in 2018¹ – 2 kt

Production

Asset	2016	2017	2018
Natural gas, mcm	3,402	3,014	2,896
Taimyrgaz	2,408	2,086	2,027
Norilskgazprom	944	928	869
Gas condensate, kt¹	115	100	90
Taimyrgaz	113	98	88
Norilskgazprom	2	2	2

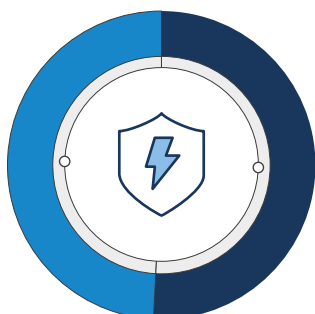
¹ Data on gas condensate production include production losses (carryover with separation gas).

Norilsktransgaz (100% stake)

transports natural gas and condensate to consumers in the Norilsk Industrial District.

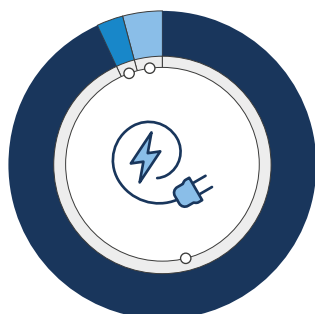
Transportation	<p>Gas and gas condensate pipelines from Pelyatkinskoye to Severo-Soleninskoye deposits</p> <ul style="list-style-type: none"> • Commissioned: 2003 • Length: 170.7 km
	<p>Gas and gas condensate pipelines from Severo-Soleninskoye Deposit to Norilsk/Dudinka</p> <ul style="list-style-type: none"> • Commissioned in: 1971 • Length: 1,418.1 km

Power generation breakdown in the Norilsk Industrial District in 2018 (%)



Renewable energy sources (hydropower)	51
Hydrocarbons (natural gas)	49

Arctic-Energy electricity sales breakdown in 2018 (%)



Kola MMC	95
Monchegorsk residents	2
Other	3

Norilsk-Taimyr Energy Company or NTEK (100% stake)

is responsible for power and heat generation, transmission and sales harnessing the assets of Norilskenergo (MMC Norilsk Nickel’s branch) and Taimyrenego. The energy sources include renewables (hydropower) and gaseous hydrocarbons (natural gas).

NTEK supplies electric power, heat and water to the city of Norilsk and all facilities of the Norilsk Industrial District. In terms of its location and operational mode, the local power grid is isolated from the national grid (Unified Energy System of Russia), which means stricter reliability requirements. NTEK operates five generating facilities – three thermal power plants with installed electricity generation capacity of 1,081 MW, and two hydropower plants with total installed capacity of 1,080 MW. Total installed capacity of all the plants is 2,271 MW.

Ust-Khantayskaya and Kureyskaya HPPs (481 MW and 600 MW of installed capacity, respectively) are the Company’s two renewable power generation facilities.

In 2018, renewables accounted for 43.6% of total power consumed by the Group and 51.4% of power consumption in the Norilsk Industrial District.

The Group’s investment programme embraces several large-scale priority projects to fully unlock the potential of renewable power sources and ensure energy savings. In 2018, the Company’s spending under the programme totalled ca. USD 97 mln (RUB 6.1 bn).

Major projects include:

- replacement of hydroelectric units and introduction of an automated dispatch system at Ust-Khantayskaya HPP;
- increase of installed generating and transformer capacities;
- TPP-1 retrofit to enable automated process control;
- replacement of wooden supports at 110 kV lines with steel ones.

Arctic-Energy (100% stake)

is a default provider ensuring an efficient and uninterrupted electricity supply at minimum prices to Kola MMC operations. In 2018, it sold 2,711,767 thousand kWh of energy.

