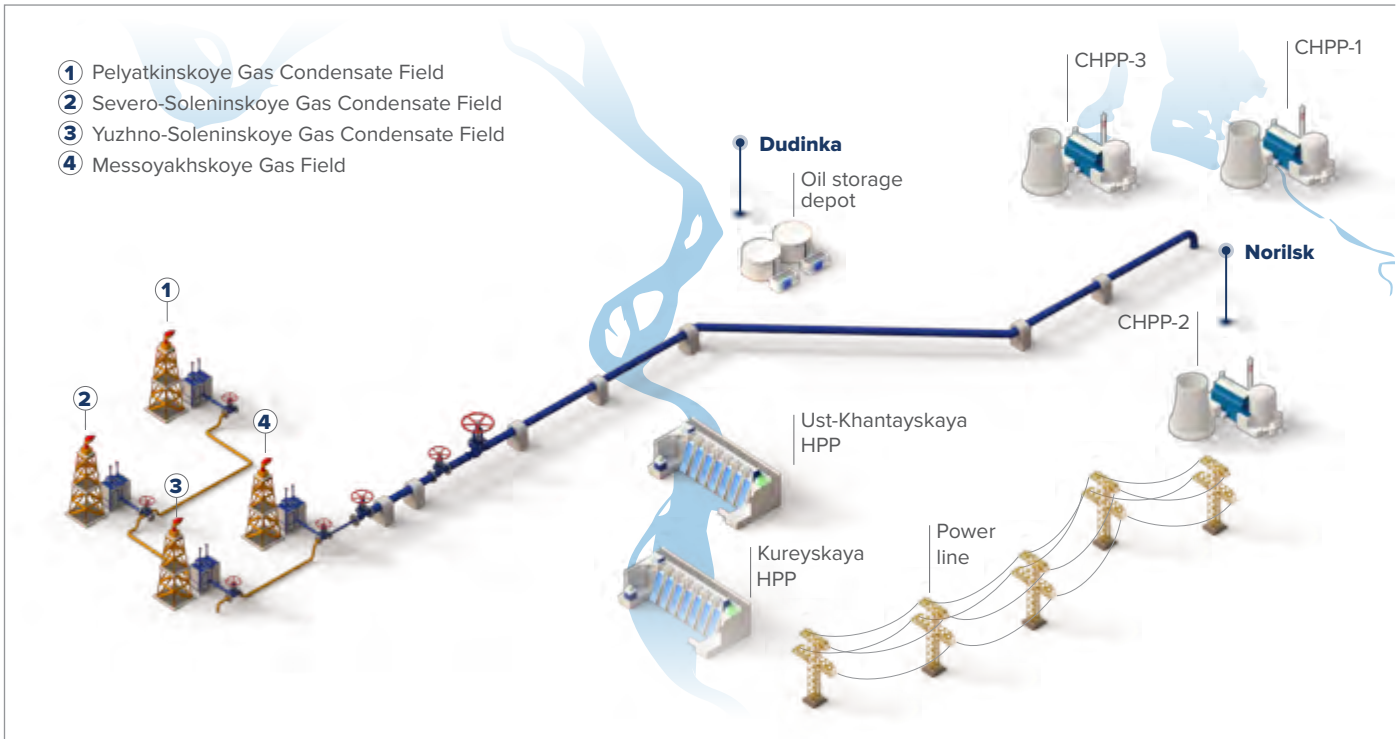
Gas and energy assets

2017 MILESTONES

Norilskgazprom and Taimyrgaz (Nornickel's gas producers) completed an investment project to build 12 production wells at the Pelyatkinskoye Gas Condensate Field. When commissioned, the wells will fully cover the peak demand for natural gas from the Norilsk Industrial District in winter.

At Ust-Khantayskaya hydropower plant (HPP), a new hydroelectric unit was put in operation as part of the third phase of an extensive programme to replace hydroelectric equipment. In 2012, Nornickel made a decision to replace seven adjustable blade hydroelectric units that had been operating for over 40 years. Improved reliability and service life of at least 50 years are among the key advantages of the new machinery. The first phase of the replacement programme was completed in November 2015, followed by the second phase in January 2016 and the third phase in August 2017, a month ahead of schedule.

Gas assets



The Company's gas assets operate as a stand-alone business unit focusing on sustainable development of the entire Norilsk Industrial District.

Taimyrgaz

Taimyrgaz operates the Pelyatkinskoye Field, which has Taimyr's largest hydrocarbon reserves. Currently, it is a primary source of natural gas fully covering the needs of the Norilsk Industrial District.

In 2017, Taimyrgaz worked on expanding its gas and gas condensate production and treatment capacity while improving the reliability of its core equipment:

- drilling of sidetracks No. 410, 411 and 846 completed;
- wells and a gas gathering system constructed and put in operation at well pad No. 4 followed by an increase in gas output by 1.2 mcm per day;
- well pads No. 5 and 6 installation completed and automatic controls introduced at wells No. 100 and 102 of the Pelyatkinskoye Field to remotely monitor their performance; additional equipment went online to protect the system against pressure drops;
- fire alarm and protection system designed for the Pelyatkinskoye Gas Condensate Field.

Norilskgazprom

Norilskgazprom operates the Messoyakhskoye Gas Field and Yuzhno-Soleninskoye and Severo-Soleninskoye Gas Condensate Fields.

In 2017, the company focused on expanding its gas and gas condensate production and treatment capacity while improving the reliability of its core equipment:

- construction of a gas distribution compressor station completed in Tukhard; the facility will be later handed over to Norilsktransgaz;
- condensate and methanol storage tanks and bunding around them repaired at the Messoyakhskoye Gas Field and Severo-Soleninskoye Gas Condensate Field;
- technical inspections and industrial safety assessments performed, with over 150 machinery units, buildings and structures certified as safe.

Norilsktransgaz

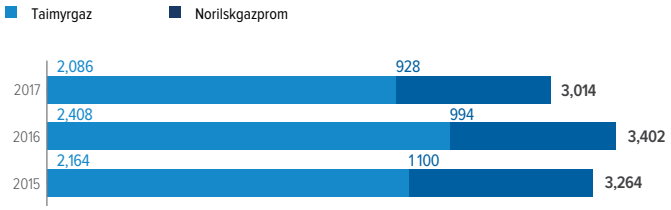
Norilsktransgaz transports natural gas and condensate to consumers in the Norilsk Industrial District.

The company was established as a result of Norilskgazprom's reorganisation in 2016 through the spin-off of the gas transportation system. In 2017, Taimyrtransgaz was liquidated, with its gas transportation assets and personnel transferred to Norilsktransgaz.

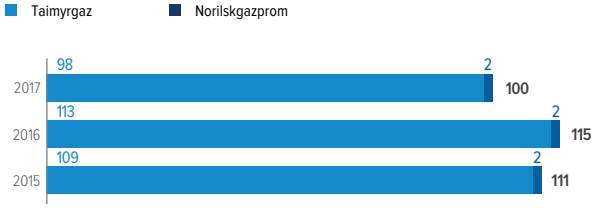
Natural gas and gas condensate reserves as at 31 December 2017

Field	Residual hydrocarbon reserves at licence blocks (A+B categories)	
	Free gas, bcm	Recoverable condensate, mln t
Norilskgazprom		
Messoyakhskoye Gas Field	6.807	–
Yuzhno-Soleninskoye Gas Condensate Field	52.8	0.5
Severo-Soleninskoye Gas Condensate Field	44.0	0.5
Taimyrgaz		
Pelyatkinskoye Gas Condensate Field	185.7	6.8
Total residual reserves	**289.3**	**7.9**

Natural gas production // mcm



Gas condensate production // kt



Energy assets

NTEK (Norilsk-Taimyr Energy Company)

NTEK engages in power and heat generation, transmission and distribution using the facilities of Norilskenergo (MMC Norilsk Nickel's branch) and Taimyrenergo. The energy sources include renewables (hydropower) and gaseous hydrocarbons (natural gas).

NTEK supplies electric power, heat and water to Norilsk and all facilities in the Norilsk Industrial District. By 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. The company operates five generating facilities: three thermal power plants (TPP-1, TPP-2 and TPP-3) and two hydropower plants. Installed electricity generation capacity of the thermal power plants is 1,205 MW, while the total installed capacity of all the plants is 2,246 MW.

In 2017, thermal power plants generated 4,360 million kWh of power; hydropower plants produced 3,069 million kWh, up 139.5 million kWh against 2016. NTEK managed to bring headwater levels in the water storage reservoirs of its hydropower plants to their multi-year average to match the peak loads during the 2017–2018 heating season.

Ust-Khantayskaya and Kureyskaya HPPs (441 MW and 600 MW of installed capacity, respectively) are the two renewable power generation facilities operated by NTEK.

In 2017, renewables accounted for 38% of total power consumed by the Norilsk Nickel Group and 44% of power consumption in the Norilsk Industrial District.

The investment programme of the Norilsk Nickel Group includes several large-scale priority projects to fully unlock the potential of renewable power sources:

- replacement of obsolete hydroelectric units at Ust-Khantayskaya HPP to make better use of water resources, increase total power output, and improve the reliability of energy supplies to the Norilsk Industrial District;
- retrofitting at TPP-2 units 1 and 2;
- replacement of wooden poles with steel poles (a 5 km section at the plant's phase 1);
- introduction of an automated dispatch system at Ust-Khantayskaya HPP;
- construction of a hydrogen generation unit at TPP-2.

In 2017, extensive efforts were invested in improving energy efficiency. As a result, NTEK achieved savings of 100,116 tonnes of reference fuel (units), 44.9 million kWh of electricity and 177,732 Gcal of heat against plan. With 49 initiatives introduced to save on fuel and energy, fuel consumption at the thermal power plants decreased to 281.4 g/kWh in 2017, down by 13.9 g/kWh against plan and 27.7 g/kWh year-on-year.

Bystrinsk Electric Grid Company

Bystrinsk Electric Grid Company was established in 2015 as a construction management business to carry out the investment project of building overhead Kharanorskaya GRES – Bugdainskaya – Bystrinskaya 220 kV power line from the 220 kV Bystrinskaya substation.

In 2017, the company:

- completed construction and installation activities;
- performed individual and integrated systems tests;
- obtained commissioning certificates;
- registered title to the facilities.

In late 2017, the overhead line and substation were formally transferred to FGC UES in accordance with the contract for the sale of power grid facilities.

Power generation in the Norilsk Industrial District in 2017 // %