The Yamal Peninsula fields will be used in the nearest decades for offsetting decline in production from the largest fields currently in operation in the Nadym-Pur-Taz region (Urengoyskoye, Medvezhye and Yamburgskoye fields).

Construction of a gas transmission system from the Yamal Peninsula to the existing gas transmission network via the shortest possible route is a priority task for Gazprom, design and engineering, construction and installation companies, producers and suppliers of large diameter pipes, fittings, shut-off and control valves, compressor and gas cooling plant equipment.

The general design institute VNIPIGazdobycha has developed a project for the creation of a gas pipeline system from the Bovanenkovsky oil, gas and gas condensate field to the existing gas transmission network with a connection point in the vicinity of Ukhta.

A separate project contains solutions for a gas pipeline system crossing through the Baidarata Bay.

The Bovanenkovo – Ukhta Gas Trunkline System project identifies design and engineering solutions for a scheduled volume of production – 115 bln m³/yr (113.3 bln m³/yr for transportation) – from the Cenomanian-Aptian deposits in the Bovanenkovsky oil, gas and gas condensate field, which is a resource base for the system. Technological parameters of the gas trunkline system are specified for its optimal throughput of 124 bln m³/yr (to be reached through extra capacity commissioning) required for further development of the Yamal Peninsula fields (Kharasaveyskoye gas and condensate field).

The process layout of the Bovanenkovo – Ukhta gas trunkline system outlines the following major parameters:

- two lines of gas pipeline with a diameter of 1420 mm (K60 and K65 grade steel, wall thickness of up to 33.4 mm), an operating pressure of 11.8 MPa (120 kgf/cm², excess) and a total length of 2,519 km;
nine two-shop compressor plants with gas pumping units rated at 16, 25 and 32 MW;
a four-line submerged crossing through the Baidarata Bay constructed with the use of 1219 mm pipes, each line is about 70 km long.

The gas pipeline route runs across areas characterized by specific natural and climatic conditions:

- Continuous permafrost with thawed soil lying only under waterway beds. The yearly average temperature of permafrost soil varies from -6.5 °C to -2.5 °C with a seasonal thawing depth ranging 0.3-0.5 m;
- Continuous and insular permafrost. The yearly average temperature of permafrost soil ranges from -1 °C to -4 °C and from 0 °C to -1.5 °C in case of insular permafrost soil;
- Sparse and insular permafrost soil with buried roof (below the gas pipeline impact level in the geological environment).

The main way of minimizing cryogenic process impacts on gas transportation facilities — transporting gas at temperature below zero (t < 0 °C) when a gas pipeline is buried in the area of primarily continuous permafrost (natural gas treatment technology at the Bovanenkovskoye gas and gas condensate field — low temperature separation involving turboexpanders, gas cooling plants with a turboexpander cycle at the Yarynskaya compressor plant).

The production process specifics on the Yamal Peninsula should also be taken into consideration. First of all, it is necessary to prepare a building site for construction and installation work by means of creating snow/ice coverage in a temporary working area (except for the trench) and taking a whole variety of other actions with regard to pipeline laying under the Arctic conditions.