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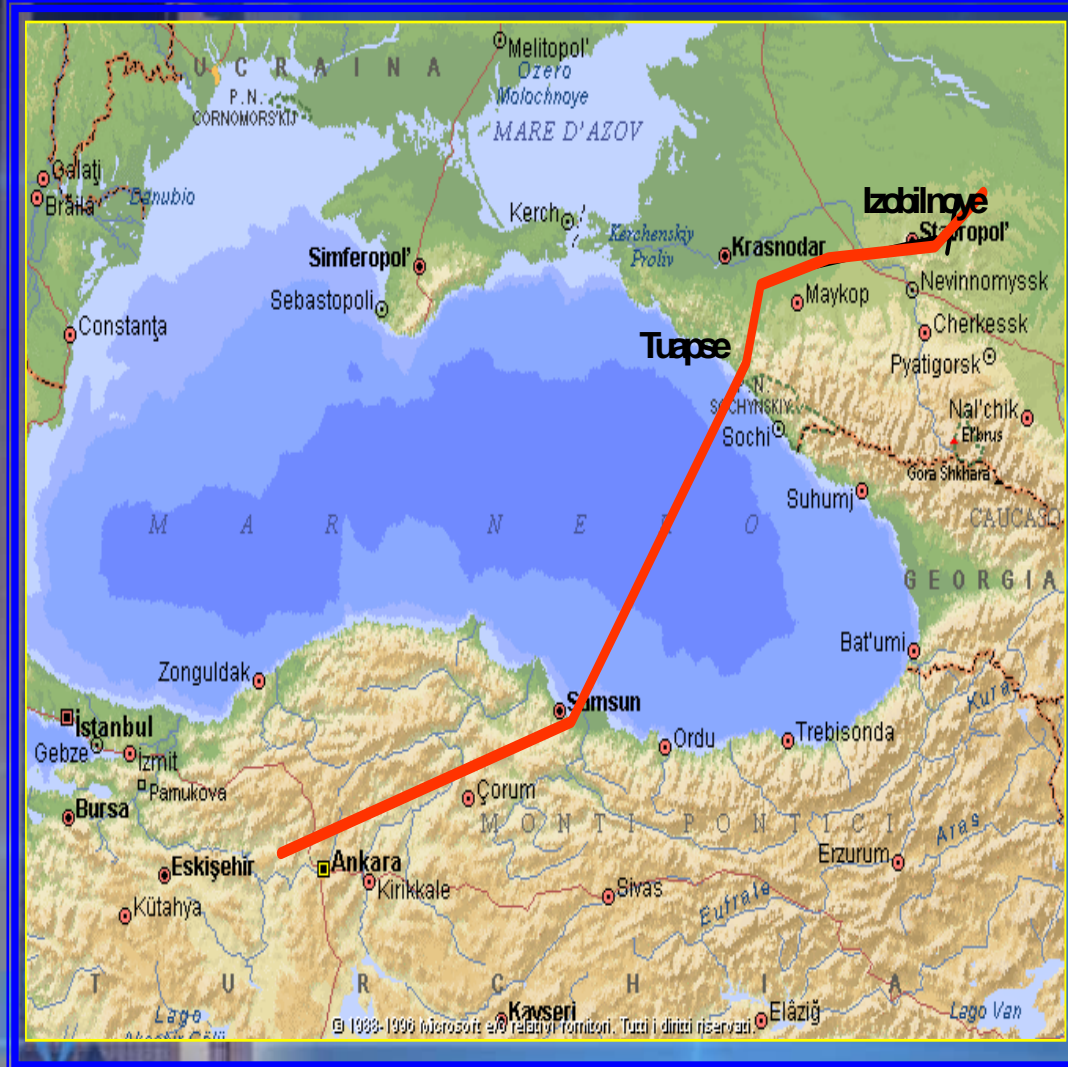
# Increasing Gas Pipeline Lifespan and Reliability Through New Engineering and Laying Technologies



# Major Parameters of Gazprom Mains

◆ Trunk pipelines and line spurs (thousand km)	156.3
◆ Products pipelines (km)	5,896
◆ Number of compressor stations	267
◆ Number of gas distribution stations	3,818
◆ Number of compressor units	4,104
◆ Installed capacity of compressor units, MWt	44,000
◆ Number of UGS facilities	24
◆ Number of cathodic protection units	20,061

# Blue Stream Russia-Turkey Gas Pipeline



Capacity – 16 bcm per year  
Length – 1231 km

## In Russia:

One line

d - 1400/1200 mm,

P - 7.4/9.8 MPa

L - 371 km

## On the Black Sea bed:

Two lines

d - 600 mm,

P - 25 MPa

L - 396 km

## In Turkey:

One line

d - 1200 mm,

P - 7.4 MPa

L - 464 km

# Challenges During Design and Construction:

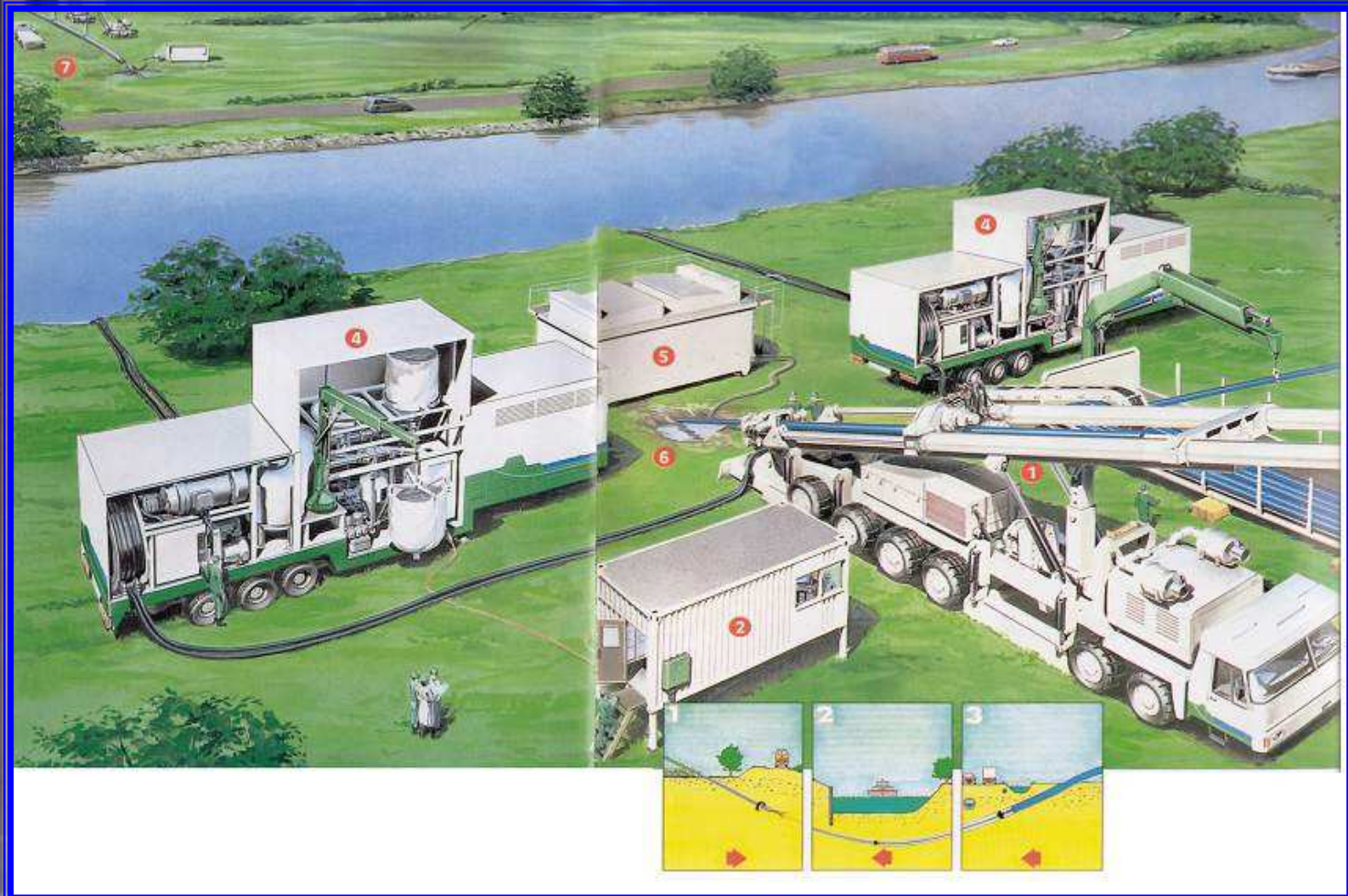
- Rugged topography of the pipeline route
- Densely populated areas
- Intensive agricultural use
- Density of the underground conduits
- Existence of many natural waterways
- Complex soil geological structures along the route of the pipeline



# Major Technical Approaches:

- Pipes made of top-quality corrosion-resistant steel with smooth-bore lining and external polymer coating
- Special cathodic protection of the pipeline marine section
- Pipeline laying in tunnels through mountain ridges
- Concrete re-enforcement of coastal pipeline sections
- Advanced Russian gas pumping units equipped with Japan made compressors

# River Crossing Construction by Horizontal Directional Drilling



# Blue Stream Mountain Segment



# Pipeline Tunneling



Total length of two tunnels – 3,260 m, diameter – 2,540 mm



# Installation of Mountain Section Stress Monitoring Unit



Intellectual Insertions  
(total 15 pieces)



# CS Beregovaya



# CS Krasnodarskaya



# Underwater Laying of Blue Stream Marine Section



# Results of the Blue Stream Project Realization:

- The volume of Russian natural gas export could be increased by 365 bcm for the period of 25 years
- Additional currency resources for the Russian economy has been secured
- JSC Gazprom has secured its presence and strengthened its positions as the largest natural gas supplier in the Black Sea region

# North European Gas Pipeline Project



# Yamal-Europe Project



# Natural Gas Transmission Routes in East Siberia and the Far East







Thank you for your  
attention