TRENDS AND PROSPECTS OF RUSSIAN GAS INDUSTRY DEVELOPMENT

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Roman Samsonov
General director  LLC “VNIIGAZ”
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- Gas reserves, production and consumption worldwide
- JSC “Gazprom” in the gas industry of Russia
- Major directions of JSC “Gazprom” activities
- Prospective directions of gas industry development
Gas proved reserves, production and consumption worldwide in 2004

Proved reserves of natural gas by region as of 01 January 2005, bcm

- **North America**: 756 (Production), 771 (Consumption), Total: 2807 bcm
- **Europe**: 343 (Production), 564 (Consumption), Total: 2807 bcm
- **Former USSR, including Russia**: 279 (Production), 241 (Consumption), Total: 520 bcm
- **Middle East**: 798 (Production), 635 (Consumption), Total: 1433 bcm
- **Africa**: 155 (Production), 77 (Consumption), Total: 232 bcm
- **Asia-Oceania**: 345 (Production), 392 (Consumption), Total: 737 bcm
- **Russia**: 674 (Production), 523 (Consumption), Total: 1197 bcm

**Consumption**: 2799 bcm
**Production**: 2807 bcm
Explored gas reserves structure in Russia as of 01 January 2005

Share of Russia in world gas reserves

- Russia: 48 trillion cu m (26%)
- Other countries: 132 trillion cu m (74%)

Share of JSC “Gazprom” in gas reserves of Russia

- JSC “Gazprom”: 29 trillion cu m (60%)
- Other countries: 132 trillion cu m (40%)

JSC “Gazprom” controls more than 16% of the world natural gas reserves.
It is required to ensure concurrent development of gas production, transport and processing as one complex system.
Unified gas supply system (UGSS) of Russia

Gas transmission bulk by UGSS in 2004, bcm

JSC "Gazprom", bcm 525,2 (76%)
Other companies, bcm 162,2 (24%)

Trunk pipeline distance, thousand km 153,3

Condensers and product pipelines distance, thousand km 5,1

Number of compressor stations 263
Number of gas-distribution stations 3 666
Number of gas pumping units 4 067
Summary capacity, million kwatt 44,2

Trunk pipelines age structure

Gas pumping units capacity distribution vs. type of drive, %

44,2 Giga watt
Underground gas storages

**Number of operating underground gas storages (UGS)**
- in depleted fields: 17
- in aquifers: 7

**Current state, forecast of tank gas volume and maximal daily withdrawal from UGS**

- Tank gas volume
  - 2005: 56.2 bcm
  - 2010: 72.6 bcm
  - 2015: 110 bcm

- Maximum daily withdrawal
  - 2005: 568 million cu m per day
  - 2010: 758 million cu m per day
  - 2015: 1000 million cu m per day
Russia’s regions gasification

2005-2007 gasification program includes

Gasification of
- Settlements: 1,120
- Households: 3,850

Conversion to natural gas
- Utility enterprises: 20,000
- Rural boilers: 5,000
- Agricultural enterprises: 500

Gas distribution network (current state)

- Number of gas pipeline branches: 3,500
- Total length of gas pipeline branches, km: 40,000
- Length of gas distribution network, km: 430,000

Level of gasification, %

- Urban: 42%
- Rural: 66%
- Total: 60%
Structure of JSC "Gazprom" gas consumption in Russia in 2004

292,1 bcm

- Power industry: 37%
- Population: 15%
- Municipal services: 9%
- Agricultural chemistry: 7%
- Metallurgy: 6%
- Other: 26%
Hydrocarbon feedstock processing by JSC "Gazprom" in 2004

**Feedstock**

- Natural gas, bcm: 32.4
- Unstable condensate and oil, million tons: 11.3

**Products, million tons**

- Ethane: 0.2 (1%)
- Mazut: 0.4 (2%)
- Diesel fuel: 1.7 (9%)
- LPG: 1.9 (10%)
- Gasoline: 2 (10%)
- Sulfur: 5.2 (26%)
- Stable condensate and oil: 8.3 (42%)
The main principles underlying OAO JSC "Gazprom" environmental activities are the reduction of the adverse effect of its production processes on the nature and the efficient use of natural resources.

Volume of pollutant emissions into the atmosphere, million tons

Structure of pollutant emissions into the atmosphere in 2004:
- Methane: 61%
- Carbon dioxide: 27%
- Nitrogen oxides: 7%
- Sulfur dioxide: 3%
- Other: 2%
Export of gas produced by JSC "Gazprom" to Europe and the FSU countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Gas Export (bcm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>36.1</td>
</tr>
<tr>
<td>Italy</td>
<td>26.6</td>
</tr>
<tr>
<td>Turkey</td>
<td>14.5</td>
</tr>
<tr>
<td>France</td>
<td>13.3</td>
</tr>
<tr>
<td>Hungary</td>
<td>9.3</td>
</tr>
<tr>
<td>Czechia</td>
<td>6.8</td>
</tr>
<tr>
<td>Poland</td>
<td>6.3</td>
</tr>
<tr>
<td>Austria</td>
<td>6.0</td>
</tr>
<tr>
<td>Slovakia</td>
<td>5.8</td>
</tr>
<tr>
<td>Finland</td>
<td>5.0</td>
</tr>
<tr>
<td>Rumania</td>
<td>4.1</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>3.0</td>
</tr>
<tr>
<td>Holland</td>
<td>2.7</td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>2.3</td>
</tr>
<tr>
<td>Greece</td>
<td>2.2</td>
</tr>
<tr>
<td>Croatia</td>
<td>0.8</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>0.9</td>
</tr>
<tr>
<td>Estonia</td>
<td>2.9</td>
</tr>
<tr>
<td>Latvia</td>
<td>1.5</td>
</tr>
<tr>
<td>Moldavia</td>
<td>1.8</td>
</tr>
<tr>
<td>Lithuania</td>
<td>2.9</td>
</tr>
<tr>
<td>Byelorussia</td>
<td>10.2</td>
</tr>
<tr>
<td>Ukraine</td>
<td>34.4</td>
</tr>
<tr>
<td>Total: 140,5 bcm</td>
<td></td>
</tr>
</tbody>
</table>

Total: 52,5 bcm
North European gas pipeline

Rated throughput capacity, BCM

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>55,0</td>
</tr>
<tr>
<td>First stage</td>
<td>27,5</td>
</tr>
</tbody>
</table>

Commissioning of the first line of the North European gas pipeline is planned in 2010.

Underwater section length, km | 1 200 |
Diameter, mm                  | 1 219 |
Working pressure, atm          | 20,0  |
Blue Stream gas pipeline

Total length, km: 1 213
Underwater section length, km: 395
Water depth, m: 2 200

Gas supply, BCM

2005: 3,7
2010: 16,0
Russia and Ukraine: cooperation in gas industry

Formation of joint venture

Separation of transit from direct supplies
Transition to market-based pricing
Transparency in mutual relations

Gas sale price change

2005
50 $ per 1000 cu m

2006
230 $ per 1000 cu m

Export gas pipelines via “Kurskaya” compressor station

<table>
<thead>
<tr>
<th>Pipeline</th>
<th>Diameter, mm</th>
<th>Pressure, atm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yamburg – state frontier</td>
<td>1400</td>
<td>75</td>
</tr>
<tr>
<td>Urengoi-Uzhgorod</td>
<td>1400</td>
<td>75</td>
</tr>
<tr>
<td>Yelets-Kremenchug-Krivoi Rog</td>
<td>1400</td>
<td>75</td>
</tr>
</tbody>
</table>
Strategic trends of JSC "Gazprom" development

- Strengthening position of the leading gas supplier to Europe
- Entering new markets (Great Britain, USA, Asian-Pacific region)
- Long-term growth of the company's value
- Formation of a world energy company
- Development of the Russia's Unified Gas Supply System (UGSS)
- Extension of the presence at market as a gas seller to final consumers
- Diversification of products (LNG, GTL, oil products, electric energy) LNG
- Enhancement of economic efficiency
- Increase of gas production and further development of the mineral base
- Expansion of the foreign markets' infrastructure
- Diversification of products (LNG, GTL, oil products, electric energy) LNG
Prospects of JSC "Gazprom" participation in the world LNG market

Prerequisites

- Powerful resource base
- Low temperature at gas production regions

Prospectives

- Involvement of distant gas reserves into commercial use
- Mitigation of export risks due to combining of pipeline and LNG supplies
- Entering profitable markets
- JSC "Gazprom" involvement into all links of LNG value chain

Shtokman field

Proven gas reserves > 3,2 trillion cu m, Condensate - 31 million ton
Forecasted gas production volumes - 67,5 bcm per year,
at first stage - 22,5 bcm per year
Potential markets - Europe and North America

- Favorable gas composition
- Considerable reserves amount
- Favorable geographical location regarding receiving terminals
- Non-freezing sea
The program envisages the following possibilities:

- Extraction of helium and ethane;
- Production of gas-chemical products (dimethyl ether, synthetic liquid fuel, methanol, polyethylene and polypropylene)
Formation of Russian GTL industry is prospective direction of JSC "Gazprom" activities.

**JSC "Gazprom"

Energy consumption: 18.7 billion kilowatt-hour (including 8% own production)

Domestic gas supplies 290 billion m³

**Russian power industry

Electric power supply: 17 billion kilowatt (92%)

Gas supply: 108 billion m³

- Generation: 915 billion kilowatt-hour
- Installed capacity: 216 Gig watt
- Gas consumption: 149 billion m³ (including JSC "Gazprom" gas – 108 billion m³)

45% of power generation in Russia operates on gas (70% - without Nuclear and Hydroelectric power stations)

JSC "Gazprom" possesses significant experience of respective activities in all segments of power generation, controls more than 10% of power industry assets in Russia