European Gas Import Requirements and Russian Gas Export Potential

Looking for the Balance

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Former Equilibrium: EU & Russia

Role of Russian gas for Europe

European Gas Consumption:
- 27% Russia

Role of gas export to EU for Russia

Russian Gas Production:
- 25% Gas Export

Security of Supply
(state investments, long-term contracts, state guarantees)

Security of Demand
(bilateral inter-governmental long-term agreements, guaranteed return of investments)

Security of Transit
(one country, one block, inter-governmental agreements on transit)
Changing Framework: Rising Risks

**EU:**
- Market liberalization
- EU policy on gas supply sources diversification, LNG development, growing competition
- Development of alternative energy sources and energy saving
- Uncertain gas demand in EU

**Russia:**
- Growing domestic demand
- Diversification of export markets
- Private-public ownership
- End of paternalistic Russian price policy for CIS
Security Dilemma Spiral in Conditions of Uncertainty

Europe
- Green Paper
- Pressure on Energy Charter
- Diversification of supply
- “Supported projects” (Nabucco, Caspian)
- Pressure on long term contracts
- Gas release programs
- Barriers for Gazprom moving downstream
- 3d liberalization Proposal

Russia
- De jure Gazprom export monopoly
- Refuse from Energy Charter
- Diversification of export markets
- Alternate transit routes
- Strategic fields
- Control over Central Asian gas
- Attempts to participate in Iran, etc.
- Gas OPEC

Contradictions and misunderstanding multiply disregarding strong investment needs
EU Gas Consumption Forecasts, bcm

Source: ERI RAS.
IEA (WEO) 2002-2006
Change in fuel shares for power generation

WEO 2002 to 2006: Comparison by Source

- N.Gas
- Hydro & RE
- Coal
- Oil
- Nuclear
## European Gas Import Requirements

<table>
<thead>
<tr>
<th>EU-27 - bcm/year</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand</td>
<td>524</td>
<td>567</td>
<td>636</td>
</tr>
<tr>
<td>Domestic Production</td>
<td>227</td>
<td>179</td>
<td>120</td>
</tr>
<tr>
<td>Deficit</td>
<td>297</td>
<td>388</td>
<td>516</td>
</tr>
<tr>
<td>Import dependence</td>
<td>56.7%</td>
<td>68.4%</td>
<td>81.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sources of import</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>57</td>
<td>71</td>
<td>91</td>
</tr>
<tr>
<td>Norway</td>
<td>80</td>
<td>95</td>
<td>115</td>
</tr>
<tr>
<td>Nigeria</td>
<td>11</td>
<td>16</td>
<td>28</td>
</tr>
<tr>
<td>Iran</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Egypt</td>
<td>5</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>Libya</td>
<td>6</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Qatar</td>
<td>5</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Other sources</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Call on Russia</strong></td>
<td>129</td>
<td>150</td>
<td>179</td>
</tr>
<tr>
<td><strong>Russia as % of the total demand</strong></td>
<td>24.6%</td>
<td>26.5%</td>
<td>28.1%</td>
</tr>
<tr>
<td><strong>Russia as % of the total import</strong></td>
<td>43.4%</td>
<td>38.7%</td>
<td>34.7%</td>
</tr>
</tbody>
</table>

Sources: Cedigaz, BP, European Commission (PRIMES).
Russian Gas Production, bcm

Source: ERI RAS.
Gazprom`s Capital investments in 2002-2008, $ bln.

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume of Investments</th>
</tr>
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<tbody>
<tr>
<td>2002</td>
<td>4.49 billion $</td>
</tr>
<tr>
<td>2003</td>
<td>6.30 billion $</td>
</tr>
<tr>
<td>2004</td>
<td>8.22 billion $</td>
</tr>
<tr>
<td>2005</td>
<td>8.40 billion $</td>
</tr>
<tr>
<td>2006</td>
<td>16.22 billion $</td>
</tr>
<tr>
<td>2007</td>
<td>30.47 billion $</td>
</tr>
<tr>
<td>2008</td>
<td>27.42 billion $</td>
</tr>
</tbody>
</table>

* - The Investment program of JSC "Gazprom" on 2007 in a new wording. It is approved by board of directors on August, 10th, 2007.

Russian Domestic Gas Consumption, bcm

Source: ERI RAS.
Looking for New Equilibrium

Main Pragmatic Goals:

- **European Union**: To guarantee necessary supply volumes
- **Russian Federation**: To guarantee sales and investments returns
- To guarantee reliable transportation

Long-term commodity contracts and long-term transit contracts will remain the backbone to secure investments and to provide a balanced risk sharing between buyers and sellers.

**New instrument**: guarantees by swaps of assets along the whole gas supply chain

- Regress: assets become guarantees along with weakening governments
  - (Alternative to vertical integration)
- Ensure timely investments and their return
- Ensure reliable supply by gas chain building