The Future of Russian Gas and Gazprom

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The Agenda for Russian Gas to 2020

DOMESTIC AGENDA:
• Supply - different options for:
  • Gazprom
  • Oil companies and gas independents
  • Central Asia
• Demand: price and market reforms
• Reform/restructuring of Gazprom and liberalisation of the domestic gas market: prices, network access, structure

INTERNATIONAL EXPORT STRATEGY AND OPTIONS:
• CIS - supply and transit
• Europe – ongoing and future projects – existing and new markets
• LNG to Atlantic and Pacific Basin markets
• Asian pipeline projects
### Russian Gas Production 2003-05 (Bcm)

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GAZPROM</strong></td>
<td>540.2</td>
<td>544.4</td>
<td>547.2</td>
</tr>
<tr>
<td><strong>“OIL” COMPANIES</strong>**</td>
<td>40.4</td>
<td>44.9</td>
<td>48.9</td>
</tr>
<tr>
<td>Surgutnefegaz</td>
<td>13.9</td>
<td>14.3</td>
<td></td>
</tr>
<tr>
<td>Rosneft</td>
<td>7.0</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td>TNK/BP</td>
<td>5.0</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td>Lukoil</td>
<td>4.7</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Yukos</td>
<td>3.4</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>Sibneft</td>
<td>2.0</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>GAS INDEPENDENTS:</strong></td>
<td>39.4</td>
<td>44.7</td>
<td>44.5</td>
</tr>
<tr>
<td>Novatek</td>
<td>2.0</td>
<td>21.8</td>
<td>25.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>620.0</td>
<td>634.0</td>
<td>640.6</td>
</tr>
</tbody>
</table>

**total does not add * provisional**
Gazprom Supply Issues Looking West

- Existing Nadym-Pur-Taz fields:
  - Big three fields are declining at 20-22 Bcm per year
  - Zapolarnoye allowed current production to more than offset decline elsewhere 2001-04 but now at plateau level of 100 Bcm/yr
  - Other new NPT satellite fields are relatively “small”

- Yamal fields:
  - Huge, but with relatively high production and transportation costs
  - To be developed in phases, with 2-3 investment decisions of $15-20bn each

Eastern Siberia/Far East are “another country”
Decline in Gazprom Production From Existing and Planned Fields 2004-2020 (Bcm)

200 Bcm decline over 15 years:

- Zapolyarnoye
- Yamburg
- Urengoy

Years:
- 2004
- 2010
- 2015
- 2020
Note time scale of these supplies, compared with decline of existing fields
Independents: who are they?

- 4 Vertically integrated “oil” companies - Lukoil, TNK/BP, Surgutneftegaz, Rosneft: rich, complex agenda, many investment options, can afford to wait
- 2 gas independents – Novatek and Itera: develop (gas and customers) or die
- Pure traders – Trans Nafta, Centrusgas

All are very dependent on:
- Gazprom patronage and cooperation
- FEA decisions on transportation tariffs
- Government policy on taxation

Small number of companies with big reserves and very different agendas
Potential Independent Gas Production Potential Outside Eastern Siberia/Far East (Bcm)

Assumptions underlying production potential are heroic but reserves are ample
Regulated Transportation

Gazprom is required to transport processed gas for independent shippers since 1998 at regulated tariffs currently:

- RR 23.84 ($0.84)/mcm/00km for delivery to Russian and CIS Customs Union customers
- $0.92/mcm/00km for delivery to foreign (CIS not European) customers

believed to be substantially greater than Gazprom’s internal charges

Obstacles to transportation include lack of:
- transparency of capacity bottlenecks, an established balancing regime, access to processing capacity, workable appeal procedures
# Gazprom Transport of Third Party Gas 1998-2004

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Number of Shippers</th>
<th>Volume (Bcm)</th>
<th>Including from Central Asia (Bcm)</th>
<th>3rd Party Gas as % of UGSS Throughpt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>6</td>
<td>28.2</td>
<td></td>
<td></td>
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<tr>
<td>1999</td>
<td>10</td>
<td>83.7</td>
<td></td>
<td>13.5</td>
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<tr>
<td>2000</td>
<td>20</td>
<td>106.2</td>
<td></td>
<td>16.8</td>
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<tr>
<td>2001</td>
<td>24</td>
<td>92.4</td>
<td></td>
<td>14.7</td>
</tr>
<tr>
<td>2002</td>
<td>33</td>
<td>103.6</td>
<td>44</td>
<td>16.3</td>
</tr>
<tr>
<td>2003</td>
<td>35</td>
<td>110.4</td>
<td>48.8</td>
<td>16.4</td>
</tr>
<tr>
<td>2004*</td>
<td>35</td>
<td>111.8</td>
<td>50.2</td>
<td>16.3</td>
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</tbody>
</table>

* preliminary

Source: Gazprom
Russia’s Other Supply Source: Central Asia

- Turkmenistan: Gazprom deal for up to 80 Bcm/yr later this decade, but 2005 supply cut-off and price increase has created doubts
- Kazakhstan: up to 8.5 Bcm in late 2000s; potentially >50 Bcm/yr to sell in the 2010s
- Uzbekistan: up to 10 Bcm/yr – potential for up to 25 Bcm/yr in the 2010s
- Azerbaijan may have available gas (??)

Central Asian supply could fill any gap/delay in new NPT fields and Yamal, but is it reliable?
Rough Costs of Different Supply Options

- Regulated 2005 prices for industrial customers in Moscow are ~$40 per thousand cubic metres ($/mcm); NPT gas is profitable at this price.
- Cost base of independents is much lower but dependent on transportation cost.
- Cost of Yamal gas delivered to Moscow depends on scale and transportation, estimated range is $60-80/mcm (cost of Shtokman gas delivered to north west Russia is similar).
- 2006 Turkmen sales price is $65/mcm (at Turkmen border) ~$90 in Russia.

Central Asia *may be* more expensive than Yamal but critically more flexible than Yamal.
Russian Gas Supply Options to 2020 (Bcm) (not including Eastern Siberia and Shtokman)

Plenty of potential supply, but choices are complex
Price and Payment Reform

Situation is transformed from 1998-2000:

● Regulated industrial prices have made most customers profitable (or at least not loss-making) to serve since 2004; 2005 prices in Moscow are ~$40/mcm

● Payments are up above 90% and cash payments above 80%

● Government has a commitment to raise prices to $60/mcm by 2010 (inflation/location??)

$60/mcm (2005$) would allow significant profits from SRMC (LRMC??)
Prices: the Link to Demand and Efficiency

CURRENT PRICES MAY NOT BE SUFFICIENT TO CREATE EFFICIENCY INCENTIVES WHICH WOULD UNLOCK:

- savings potential
- efficiency potential

KEY ISSUE IS REPLACEMENT OF CAPITAL STOCK AND CONFIDENCE IN PROPERTY RIGHTS TO ENABLE INVESTMENT:

Industrial restructuring and market reform will reinforce savings/efficiency even as the economy grows

Quantification of sectoral potential and aggregate effects is a big challenge
## Russian Gas Exports to Europe 1995-2005 (Bcm)

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<th></th>
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<tbody>
<tr>
<td>Western Europe</td>
<td>75.1</td>
<td>90.3</td>
<td>87.8</td>
<td>94.4</td>
<td>107.3</td>
<td>111.4</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>42.3</td>
<td>38.7</td>
<td>41.6</td>
<td>44.5</td>
<td>41.8</td>
<td>42.9</td>
</tr>
<tr>
<td>Baltic States</td>
<td>4.4</td>
<td>4.7</td>
<td>4.7</td>
<td>6.2</td>
<td>5.0</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL EUROPE</td>
<td>121.8</td>
<td>133.7</td>
<td>134.1</td>
<td>145.1</td>
<td>154.1</td>
<td>160.3</td>
</tr>
</tbody>
</table>

*Gazprom only, includes re-exports of Central Asian gas

### Biggest customers – 2004 (Bcm):
- Germany 41
- Italy 22
- Turkey 15
- France 14
Aftermath of 2006 Russia-Ukraine Gas Crisis

The January 4 and February 3 agreements:

- leave many questions as to volumes and prices for gas supplies that Ukraine needs
- do not deal with governance allegations against RosUkrEnergo
- need to address Ukrainian direct purchase of Turkmen gas: should RUE have a monopoly of Central Asian sales to Ukraine?

Unless the situation improves, Gazprom will minimise Ukrainian transit by:

- maximising Yamal and Blue Stream capacity
- ensuring NEGP is built as quickly as possible
Russian Pricing of Gas to CIS Countries: a new era (prices in $ per thousand cubic metres)

Ukrainian price of $230 (cf German border price around $235 in Q2 2006):

- Belarus $46.67 – but under threat that “market prices” will be introduced in 2007 unless Gazprom gets 50% of Beltransgaz
- Moldova $110 until June 2006 - $160 thereafter??
- Georgia, Armenia, Azerbaijan all at $110

Major issue is whether these countries are buying Russian gas or Central Asian gas, currently $65 at the Turkmen border
Gazprom: current export projects – Europe and LNG

- Gazprom Marketing and Trading sells spot gas in UK (but also Belgium):
  - Minimum 3.5 Bcm/year, 8-10 Bcm by 2010?
  - Via Ukraine/German storage and using partners: Wingas, GdF, Hydro
  - Purchases from Kazrosgas JV

- North European Pipeline (NEP) under way following agreement with E.ON and BASF

- LNG: to US from Shtokman; five JV partners announced (will be reduced to four?)

If NEP is completed on schedule Russian export capacity to Europe will be ~210 Bcm in 2010
Chinese Gas Import Policy/Priorities

CHINA BECAME FIXED ON LNG BUT...

- First two LNG contracts were signed on very favourable terms: low base prices plus ceiling prices not linked to oil, plus upstream equity shares
- Rise in oil prices plus tight Asia-Pacific market means that:
  - LNG suppliers will no longer offer these terms to Chinese importers
  - Without these price terms, gas cannot compete in Chinese power sector
  - China is already being outbid by Japanese suppliers for new LNG

China is being forced towards pipeline gas
Putin’s Visit to China in March 2006

MOU Signed with China for Two Gas Pipelines (80 Bcm/year):

- One from Western Siberia - perhaps to join up with a second West-East Pipeline(?) – makes little sense for Russia given opportunity costs; little sense for the Chinese because of price policy

- One via the “eastern route” could be Kovykta or Sakha gas: makes a great deal more sense

Despite press talk of 2011-12; long negotiations (joint venture/price) seem likely
Gazprom’s Agenda 1: ongoing tasks

- **REFORM**: corporatisation and legal unbundling, financial resp’ity/cost control
- **NETWORK RELIABILITY**: refurbishing and replacing a huge ageing network
- **SUPPLY REPLACEMENT**: moving to Yamal/ offshore as existing major fields decline
- **IMPORTS**: develop/maintain reliable large scale Central Asian imports
- **TRANSIT**: stabilise/normalise relationships with Ukraine, Belarus, Moldova
- **EUROPEAN EXPORTS**: manage huge export portfolio, including direct sales, at a time of potentially far-reaching change in terms of liberalisation/competition
Gazprom’s Agenda 2: new projects/issues

- North European pipeline: create JV (including upstream), organisation of construction; arrange sales contracts including UK sales
- Shtokman LNG: create JV (upstream to regasification with 4-5 partners), arrange sales contracts; organisation construction
- Ust Luga LNG: decide whether to progress
- Decide on development of pipeline and LNG export business in North East Asia including: Sakhalin 2 (recently acquired stake), Kovykhta (TNK/BP), other projects
- PLUS Sibneft purchase – managing 1mmb/d of oil assets – domestic/international

Can any management handle all these tasks/projects simultaneously?
Summary and Conclusions: increasing incompatibility of Gazprom’s Agendas

RUSSIAN GAS UTILITY AGENDA
VERSUS
GLOBAL GAS COMPANY AGENDA

Gazprom’s current strategic vision of becoming “a global, vertically integrated energy company” is not a recognisable business model
## Gazprom and Russian Gas: past and future

<table>
<thead>
<tr>
<th>THE PAST</th>
<th>THE FUTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply dependent on three major Russian fields</td>
<td>Supply much more diversified: domestic plus Central Asia</td>
</tr>
<tr>
<td>Gazprom has virtual monopoly of production</td>
<td>Independents account for at least 20% of production</td>
</tr>
<tr>
<td>Domestic market loss-making</td>
<td>Domestic market will be profitable</td>
</tr>
<tr>
<td>Exports to CIS and Europe by pipeline only</td>
<td>LNG exports to Asia and North America; longer term pipelines to Asia</td>
</tr>
<tr>
<td>Gazprom is Russia gas utility with exports</td>
<td>Gazprom is global gas (and oil?) company</td>
</tr>
<tr>
<td>Gazprom of interest to European utilities only</td>
<td>Gazprom of interest to all international energy companies</td>
</tr>
</tbody>
</table>