Le futur des marchés du gaz en Europe
Grenoble, 24 avril 2009

UE – Russia : Remarks on Gas Issues

Jean Eudes Moncomble
Secrétaire général,
Conseil Français de l’Energie
The World Energy Council (WEC) is one of the foremost multi-energy organisation in the world today. Established in 1923, the organisation covers all types of energy, including coal, oil, natural gas, nuclear, hydro, and renewables. WEC is UN-accredited, non-governmental, non-commercial and non-aligned. WEC is a UK-registered charity, headquartered in London.

WEC has Member Committees in about 100 countries in the world, including most of the largest energy-producing and energy consuming countries. (2/3 of developing countries)

*To promote the sustainable supply and use of energy for the greatest benefit of all people*
We studied Energy Policy within the framework of:

- **Government Engagement (High – Low)**
- **Cooperation and Integration (High – Low)**

These dimensions have real interest across the spectrum of WEC member counties.
<table>
<thead>
<tr>
<th>Elephant</th>
<th>Lion</th>
</tr>
</thead>
<tbody>
<tr>
<td>World TPES in 2050 15% below « Leopard »</td>
<td>World TPES in 2050 5% below « Leopard » despite higher GDP growth</td>
</tr>
<tr>
<td>Peak oil (conventional) around 2020, 86 Mb/d</td>
<td>Peak oil (conventional) around 2035, 97 Mb/d</td>
</tr>
<tr>
<td>Increase in fossil fuels: +50%</td>
<td>Increase of fossil fuels: +60%</td>
</tr>
<tr>
<td>Power generation in 2050: 50% non fossil</td>
<td>Power generation in 2050: 55% non fossil</td>
</tr>
<tr>
<td>World TPES doubling from 2005 to 2050</td>
<td>World TPES in 2050 20% above « Leopard » due to higher GDP growth</td>
</tr>
<tr>
<td>Peak oil (conventional) around 2030, 98 Mb/d</td>
<td>Peak oil (conventional) around 2035, 107 Mb/d</td>
</tr>
<tr>
<td>Increase in fossil fuels: +85%</td>
<td>Increase of fossil fuels: +110%</td>
</tr>
<tr>
<td>Coal: 40% of power generation in 2050</td>
<td>Power generation in 2050: 45% non fossil</td>
</tr>
</tbody>
</table>
Promouvoir la fourniture et l'utilisation durables de l'énergie pour le plus grand bien de tous

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Energy intensity

MJ / $2005 ppa

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Promouvoir la fourniture et l’utilisation durables de l’énergie pour le plus grand bien de tous
Oil production

Giraffe
Lion
Leopard
Elephant

Oil production in Mbl/j from 2005 to 2050.

- Giraffe: Increasing production
- Lion: Steady production
- Leopard: Moderate increase
- Elephant: Steady production
Promouvoir la fourniture et l'utilisation durables de l'énergie pour le plus grand bien de tous

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Promouvoir la fourniture et l'utilisation durables de l'énergie pour le plus grand bien de tous
CO₂ emissions

Gt

0 10 20 30 40 50 60

2005 2020 2035 2050

Giraffe
Leopard
Elephant
Lion

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Gas Crisis – January 2009
Gas Crisis – January 2009 - Slovakia

Normal operation

Imports from Ukraine

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First reaction after interruption of gas flow

Slovakia fully supplied from storages
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Gas Crisis – January 2009 - Slovakia

First cooperation with international partners

Usage of storage capacity of international partners

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Gas Crisis – January 2009 - Slovakia

Start of cross-border cooperation

Reverse-flow through Czech Rep. to Slovakia

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Gas Crisis – January 2009 - Romania

Medieşu Aurit

Isaccea II
Gas Crisis – January 2009 - Romania
Gas Crisis – January 2009 - Romania

Affected consumers (total reduction of the gas flow rate ~ 6 mcm / day)
Electrocentrale Bucuresti (South Thermal Power Plant, Vest TPP, Grozavesti TPP);
Brazi TPP;
Chiscani TPP;
Isalnita TPP;
Braila TPP;
Rovinari TPP;
Pitesti TPP;
Gavana TPP;
Arad TPP;
Timisoara TPP;
Termica Botosani TPP;
Mintia TPP;
Iasi TPP;
Paroseni TPP;
Pallas Constanta TPP;
Galati TPP;
**Gas Crisis – January 2009 - Romania**

<table>
<thead>
<tr>
<th>Good Luck</th>
<th>No pipeline connections from Romania to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2009</td>
<td>“typical” Jan</td>
</tr>
<tr>
<td>Domestic Gas Production</td>
<td></td>
</tr>
<tr>
<td>34 mcm</td>
<td>32 mcm</td>
</tr>
<tr>
<td>Withdrawal from Storage</td>
<td></td>
</tr>
<tr>
<td>25 mcm</td>
<td>25 mcm</td>
</tr>
<tr>
<td>Imports</td>
<td>13 mcm</td>
</tr>
<tr>
<td>TOTAL CONSUMPTION max</td>
<td></td>
</tr>
<tr>
<td>59 mcm</td>
<td>70 mcm</td>
</tr>
<tr>
<td>TOTAL CONSUMPTION real</td>
<td></td>
</tr>
<tr>
<td>50-55 mcm</td>
<td></td>
</tr>
</tbody>
</table>

- Bulgaria: ongoing topic, no solution
- Serbia: request for support
- Hungary: 2010?

No reverse flow foreseen
Storages and transport capacities were readily available – but not sufficient in several countries! Granting of incentives for the construction of further storage facilities is necessary (EU Recovery Plan!)

Avoid Supply Islands - further infrastructure (esp. interconnectors between countries) has to be more developed.

Projects like Nabucco, LNG, storage,… will contribute to avoid shortage again. The right incentives for such investments have to be immediately provided and political support should be granted.
Gas Crisis – January 2009 – without comment

L. Jahnátek, Slovak Minister of Economy (28.1.2009)

- „Slovak Government will bring gas storages under full control.”
- „The Ministry of Economy will have ... powers to suspend extraction capacities for customers outside of Slovakia and use them preferentially for the country.“

Corresponding legislation was approved in Feb 2009

E. Müller, Bavarian Minister for European Questions (13.2.2009)

- „Solidarity in Europe doesn’t mean socialization of German underground gas storage capacity.”
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Promouvoir la fourniture et l'utilisation durables de l'énergie pour le plus grand bien de tous

Gas reserves (in bcm)

<table>
<thead>
<tr>
<th>Country</th>
<th>Reserves (bcm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>44,649</td>
</tr>
<tr>
<td>Caspian Region</td>
<td>7,593</td>
</tr>
<tr>
<td>Middle East</td>
<td></td>
</tr>
<tr>
<td>Iran</td>
<td>27,800</td>
</tr>
<tr>
<td>Iraq</td>
<td>3,170</td>
</tr>
<tr>
<td>Egypt</td>
<td>2,063</td>
</tr>
</tbody>
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Promouvoir la fourniture et l'utilisation durables de l'énergie pour le plus grand bien de tous

EU27+ Gas Independence Ratio (%)
From Energy Security to Energy Vulnerability

1. Energy efficiency, both on supply and demand sides
2. Diversification of energy technologies and sources
3. Closer integration of energy markets, regionnally and globally
4. Creating a new international framework for cooperation
5. Global dialogue on security of supply and demand
6. Taxation, legal and commercial frameworks