Liberalisation of the European Union natural gas industry: some issues

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1 - Historical background

Natural constraints, rigidities and heterogeneity

- Some producing countries: Romania, Italy (Cortemaggiore: 1949), France (Lacq: 1951-1957), the Netherlands (Groningen: 1959), North Sea: seventies (the United Kingdom, Germany, Denmark), Poland. Norway: 1977.

- State firms (ENI, ERAP, GDF, British Gas, Distirgas, Gasunie, DONG, OMV): national network industry, heavy investment.

- National energy policies: diversification of supplies, especially after the oil shocks.

- Natural gas policies: long term contracts, take or pay, country clauses, price indexation. Bilateral constraint/security for the supplier and for the buyer.

- Natural gas contribution to national energy balance.

- Interconnection with neighbour countries.

- Sea access.

- Large distances.
EU natural gas imports main routes

Limited LNG imports into the EU:
93.7% pipeline gas
6.3% LNG
Natural gas in the European Union

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>NG production</td>
<td>173,3</td>
<td>178,1</td>
<td>190,2</td>
<td>191,0</td>
<td>172,7</td>
</tr>
<tr>
<td>NG consumption</td>
<td>196,3</td>
<td>266,9</td>
<td>333,4</td>
<td>445,9</td>
<td>433,7</td>
</tr>
<tr>
<td>NG imports</td>
<td>23,0</td>
<td>88,8</td>
<td>143,2</td>
<td>254,9</td>
<td>260,1</td>
</tr>
<tr>
<td>Total primary energy</td>
<td>1406,5</td>
<td>1598,8</td>
<td>1636,7</td>
<td>1780,0</td>
<td>1744,5</td>
</tr>
<tr>
<td>consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NG (% of energy consumption)</td>
<td>14,0%</td>
<td>16,7%</td>
<td>20,4%</td>
<td>25,1%</td>
<td>24,9%</td>
</tr>
<tr>
<td>NG imports (% of NG consumption)</td>
<td>11,7%</td>
<td>33,3%</td>
<td>43,0%</td>
<td>57,2%</td>
<td>60,2%</td>
</tr>
<tr>
<td>NG imports (% of energy consumption)</td>
<td>1,6%</td>
<td>5,6%</td>
<td>8,7%</td>
<td>14,3%</td>
<td>15,0%</td>
</tr>
</tbody>
</table>


- Natural Gas contribution is 25% of total primary energy demand in the EU.
- Natural Gas imports are 60% of NG consumption, 15% of total primary energy demand.
Natural Gas is 25% of the primary energy consumption of the European Union (2007)

This is an average of rather different situations, such as:

<table>
<thead>
<tr>
<th>Gas non-intensive countries</th>
<th>NG relative to total primary energy (%)</th>
<th>NG imports relative to NG consumption (%)</th>
<th>Gas intensive countries</th>
<th>NG relative to total primary energy (%)</th>
<th>NG imports relative to NG consumption (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden:</td>
<td>2% (1Bcm)</td>
<td>100% (1Bcm)</td>
<td>Hungary:</td>
<td>43% (11,8Bcm)</td>
<td>100% (11,8Bcm)</td>
</tr>
<tr>
<td>Greece:</td>
<td>11% (4Bcm)</td>
<td>100% (4Bcm)</td>
<td>Italy:</td>
<td>39% (77,8Bcm)</td>
<td>96% (74,7Bcm)</td>
</tr>
<tr>
<td>Bulgaria:</td>
<td>14% (3,1Bcm)</td>
<td>100% (3,1Bcm)</td>
<td>United Kingdom:</td>
<td>38% (91,4Bcm)</td>
<td>3% (2,7Bcm)</td>
</tr>
<tr>
<td>France:</td>
<td>15% (42Bcm)</td>
<td>98% (41Bcm)</td>
<td>Romania:</td>
<td>37% (16,4Bcm)</td>
<td>29% (4,8Bcm)</td>
</tr>
</tbody>
</table>
2 - Natural gas policy of the European Commission: liberalisation

Three energy policy goals to be reached through liberalisation:

And for the consumer:
- lower prices,
- better quality of services,
- quicker adoption of new technologies.

Main steps:

  State monopolies constitute barriers to liberalising energy markets.
- 1998: Gas directive (98/30/EC)
  Creating competitive natural gas markets and implementing non-discriminatory third-party network access.
- 2007: Third Energy Package (expected to come in force by summer 2009)
  Market integration at a regional scale, and later on a European scale; network cross-border cooperation; European regulation.
Main results, 2008

• Nearly 10% (about 45 Bcm) of the EU natural gas market (482 Bcm) are open to competition.

• 3 hubs are operational:
  The National Balancing Point (UK, virtual) 1996;
  The Title Transfer Facility (Netherlands, virtual) 2003;
  Zeebrugge (Belgium, physical) 1999;
Other hubs of minor importance:
  Points d’Echange de Gaz (France, virtuals; 5) 2004;
  Punto di Scambio Virtuale (Italy, virtual) 2003;
  BEB (Germany-Netherland) 2004;
  EuroHub (Germany-Netherland);
  Baumgarten (Austria);

• Proportions of customers that change their supplier differ according to the member countries:
  low (less than 5%) in Austria, Germany, Luxemburg, Hungary, Sweden, Czech Republic, Poland;
  high (more than 50%) in Belgium, Ireland, United Kingdom, Spain.

• Administered prices survive in many countries.

• A high degree of vertical integration between supply, transport and distribution survives in many countries.

• Regional initiatives (3: North West, South, South East) are implemented in 2006:
  - entry-exit third party access tariffs,
  - gas release programs,
  - coordinated regional regulation.
Natural gas retail prices in the EU, June 2007
Natural gas transport governance in the EU
Regional natural gas initiatives in the EU

La CRE participe à deux initiatives régionales gaz. Dans l'initiative régionale Nord-Ouest, la priorité est donnée à l'amélioration de l'accès aux capacités d'interconnexion. Dans l'initiative Sud, la priorité est donnée au développement de nouvelles capacités d'interconnexion entre la France et l'Espagne.
3 – Some issues

The main questions that are stressed by the European Commission (DG COMP & DG TREN):

• The vertical unbundling of the natural gas industry (to prevent any discriminatory behaviour): Ownership unbundling, Independent System Operator, or Independent Transmission System Operator.
• The risk of market dominance: control of mergers, gas release.
• Some imperfections and inadequacy in regulation such as: administered prices, cross-border trade and investment, transparency.

Other questions:
• The risk of a bilateral oligopoly: Cournot states that two vertically separated monopolies are worse than one integrated monopoly.
• May competition mechanically result in lower market prices?
• The risk of competition under a sellers’ market.
• The weakening of the incumbents: the main suppliers (Gazprom, Sonatrach, Statoil) would be the only powerful gas firms.
• Security vs competitiveness.
Natural gas prices under competitive rules

The price of gas is a small part of what is paid by the consumer.

In France for instance, 2007:

<table>
<thead>
<tr>
<th>(% of the total price)</th>
<th>Energy</th>
<th>Distribution</th>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>20%</td>
<td>35%</td>
<td>45%</td>
</tr>
<tr>
<td>Industry</td>
<td>33%</td>
<td>-</td>
<td>66%</td>
</tr>
</tbody>
</table>
Price mechanisms under competitive rules

- Competitive price on a sellers’ market (marginal cost)
- Administered price (average cost)
- Competitive price on a buyers’ market (marginal cost)
A sellers’ market

- LNG worldwide liquefaction and regasification capacities (Mt LNG/year)
  
  *(Source: *Petroleum Economist*)

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2006</th>
<th>2008*</th>
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</thead>
<tbody>
<tr>
<td>Liquefaction capacities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(exports)</td>
<td>131</td>
<td>170</td>
<td>241</td>
</tr>
<tr>
<td>Regasification capacities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(imports)</td>
<td>244</td>
<td>270</td>
<td>378</td>
</tr>
<tr>
<td>Export capacities / import</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>capacities</td>
<td>54%</td>
<td>63%</td>
<td>64%</td>
</tr>
</tbody>
</table>

LNG makes up 29% of international natural gas trade in 2007.
Competition: a process, not a stable structure

Competition can be characterised by:

- Five competitive forces (according to Michael Porter):
  - the degree of rivalry between existing competitors
  - bargaining power of suppliers
  - bargaining power of buyers
  - threat of entry of new competitors
  - threat of substitutes.

- Strategies implemented by the stakeholders:
  - The incumbents: integration (vertical, horizontal, conglomerate)
  - Suppliers: integration (mainly vertical)
  - The member states of the EU: security of supply.

- E.On-Ruhrgas (MOL, Powergen); GDF-Suez; Centrica (NG & electricity); Gas Natural (NG & electricity: Union Fenosa); RWE-Transgas; ENI (Distrigaz); DONG (electricity)…
- Gazprom (transport in Eastern Europe & distribution); Statoil-NorskHydro (distribution); Sonatrach (distribution, LNG terminals, electricity).
- Italy: ENI-Gazprom (Bluestream), ENEL-Sonatrach-Wintershall (GALSI); Germany: E.On-Gazprom (Nord Stream); Spain: Sonatrach-Cepsa (Medgaz).
Suppliers actual and potential outlets

- Norway
  - North America
  - EU

- Russia
  - North America
  - EU
  - Asia

- Algeria
  - North America
  - EU
  - Asia
  - Pacific
Natural gas actual and potential suppliers for the EU

- Norway
- Russia
- Algeria
- North Sea & other EU producers

- Trinidad & Tobago
- Venezuela
- Nigeria
- Libya
- Egypt
- Qatar
- Oman
- United Arab Emirates
- Iraq
- Indonesia
- Australia
- Uzbekistan
- Turkmenistan
- Iran
- Saudi Arabia
- Malaysia

11% 49% 40%
Conclusion

- For the two last decades, great progress has been accomplished in the EU towards a more competitive, more European integrated natural gas industry.

- Nevertheless, NG prices do not decrease.

- The competitive process is going ahead.

- European Union should be careful not to sacrifice the question of energy dependence in order to achieve a more competitive natural gas internal market.