Gas and coal: friends or enemies

Bogdan Janicki, Senior Advisor, CEEP

Working Breakfast in the European Parliament
II European Coal Days
1st of December 2011
European Energy Security from a Central European point of view

Saturated EU Economies

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP per capita w 000’ EUR, 2009 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>31</td>
</tr>
<tr>
<td>Denmark</td>
<td>40</td>
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<tr>
<td>Germany</td>
<td>29</td>
</tr>
<tr>
<td>Ireland</td>
<td>36</td>
</tr>
<tr>
<td>Greece</td>
<td>21</td>
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<tr>
<td>Spain</td>
<td>23</td>
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<tr>
<td>France</td>
<td>30</td>
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<tr>
<td>Italy</td>
<td>25</td>
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<tr>
<td>Cyprus</td>
<td>21</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>76</td>
</tr>
<tr>
<td>Malta</td>
<td>14</td>
</tr>
<tr>
<td>Netherlands</td>
<td>36</td>
</tr>
<tr>
<td>Austria</td>
<td>33</td>
</tr>
<tr>
<td>Portugal</td>
<td>16</td>
</tr>
<tr>
<td>Finland</td>
<td>32</td>
</tr>
<tr>
<td>Sweden</td>
<td>31</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>25</td>
</tr>
</tbody>
</table>

Average GDP per capita: 28

Source: Eurostat

Non saturated EU economies

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP per capita w 000’ EUR 2009 year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>5</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>13</td>
</tr>
<tr>
<td>Estonia</td>
<td>10</td>
</tr>
<tr>
<td>Lithuania</td>
<td>8</td>
</tr>
<tr>
<td>Latvia</td>
<td>8</td>
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<tr>
<td>Hungary</td>
<td>9</td>
</tr>
<tr>
<td>Poland</td>
<td>8</td>
</tr>
<tr>
<td>Romania</td>
<td>5</td>
</tr>
<tr>
<td>Slovenia</td>
<td>17</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>12</td>
</tr>
</tbody>
</table>

Average GDP per capita: 8

Source: Eurostat
GDP per capita (000’EUR) UE27

<table>
<thead>
<tr>
<th>Year</th>
<th>Saturated Economies</th>
<th>Non Saturated Economies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>26.7</td>
<td>6.3</td>
</tr>
<tr>
<td>2006</td>
<td>27.8</td>
<td>7.1</td>
</tr>
<tr>
<td>2007</td>
<td>29.2</td>
<td>8.3</td>
</tr>
<tr>
<td>2008</td>
<td>29.2</td>
<td>9.4</td>
</tr>
<tr>
<td>2009</td>
<td>27.5</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Source: Eurostat
CO2 emissions per capita (kg/cap) 2009

Source: European Commission, Countries factsheets
Energy consumption per capita 2009 - kgoe / cap

Source: European Commission, Countries factsheets
Global hard coal and lignite reserves

Billion tonnes of coal equivalent (Gtce)

- North America: 13 (199)
- Central and South America: 8
- Europe: 16 (22)
- Africa: 24
- CIS: 105
- Other Asia: 8 (4)
- China: 4 (153)
- Australia: 37 (15)
- New Zealand: 1

Emerging markets do not stop use of coal because they need cheap energy

The world's largest exporter of coal

Source: BGR, EURACOAL

Bogdan Janicki, Senior Advisor, CEEP
Coal in Europe

Lignite production, hard coal production and imports in Mt in 2010
Sources: EURACOAL, national statistics, partly preliminary figures
*2009

Information
- Lignite production
- Hard coal production
- Hard coal imports
Employment in the European coal industry 2010

2010 EU 27 app. 300,000 direct & 800,000 - 1,000,000 indirect jobs in coal mining

For each direct jobs in the lignite industry, another 2.5 jobs are created at companies who supply equipment and services. Each jobs in the hard coal mining industry generates another 1.3 jobs.

Source: EURACOAL, others

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UE 27 import dependency

Source: Eurostat
Elimination of solid fuels is impossible, but it is unfortunately possible that: countries who use coal will pay more for energy due to EU climate regulations. They are mostly countries with non saturated economies.

Source: European Commission, Countries factsheets
Prices of energy

EU import prices for coal, oil and natural gas, 1985 to 2010

Source: IEA, EURACOAL

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In times of crisis, EU countries need cheap sources of energy. Solid fuels are cheapest.
Full costs of new lignite-, coal- and gas - fired power plants

According to analysis by the university of Stuttgart, production costs are approximately:
• EUR 29/MWh for lignite,
• EUR 33/MWh for hard coal
• EUR 42/MWh for natural gas

Source: EURACOAL, University of Stuttgart
Action taken by the European Commission aimed at increasing the share of natural gas in the EU energy mix

Gas prices, however, are not the same for all!
The average price of Russian gas in Europe (USD/1000m3)

Source: Rzeczpospolita

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Central European states are dependent on mainly one gas supplier
The new natural gas pipelines in Europe

**NORDSTREAM**

Nordstream gas pipeline will deepen differences between Central Europe countries and UE 15. This will negatively affect the competitiveness of the CE economies.

Source: Nordstream, BBC

Nabucco will diversify the natural gas supply and is a chance for Central Europe countries, as concerns price levels.
Many coal power plants in Central Europe have an energy efficiency of 30%,

New power units can have an efficiency of 45%-46%

CO2 emissions (kgCO2/1GJ)

Source: Central Mining Institute, EURACOAL, others
What will the impact be of shale gas on the gas market in the EU? (bcm)

Estimated resources of Polish shale gas (1,400 – 3,000 bcm) is equivalent to:

- 3 - 6 years of EU gas consumption
- 10 - 20 years of EU gas imports from Russia
- 100-200 years of gas consumption in Poland

Recently presented U.S. Geological Survey estimate - 5,300 bcm

Source: Eurostat, Geologica Review 2010
• European Union cannot function without coal

and

• European Union cannot function without gas (including shale gas)

**We need all energy sources and particularly indigenous UE-27 European sources**

Europe has to be competitive and must use as much energy as possible from its own sources.

**Coal and shale gas meet these conditions**
The impact assessment - CEEP Proposal

„Most moves made by the [European] Commission, one way or the other, tend to almost, either directly or indirectly, reduce the competitiveness of European industry.”

Simon Henry, SHELL, Chief Financial Officer

Each Directive, or any other legal solution stated by the EU, should be justified by economic calculations (The impact assessment) concerning their influence on:

- The EU’s competitiveness against the USA, China, India, Brazil, and Russia, with a special chapter concerning the competitiveness of Central European countries;

- The economies of EU countries: taking into consideration their level of development and GDP, and natural resources of energy.
The impact assessment - CEEP Proposal

To allow immediate investment in coal power plants we ask the DG Energy to both consider all aspects of coal usage and extend the derogation period for new power plants based on coal with the efficiency of a minimum 45%, whilst a minimum 20 years from their operational date be granted. This derogation period should be shortened when the complete CCS technological chain is available, economically and commercially.

If such solutions are adopted immediately, it will allow investors to start their investments and to contribute towards solving efficiently in-coming energy problems in the EU countries, fulfilling EU energy objectives.

Source: www.telegraph.co.uk 26 October 2011
Thank-you for your attention