Poland Coal Sector Update to the 19th Session of the Global Methane Initiative (GMI) Coal Subcommittee

Geneve, October 22nd, 2014

Central Mining Institute, Katowice, Poland
Experimental Mine „Barbara”
Poland Coal Sector Update

Any new trends in the coal sector

<table>
<thead>
<tr>
<th></th>
<th>Unit of measures</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>First half of 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total volume of methane emissions</strong></td>
<td>mln m³</td>
<td>%</td>
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<tr>
<td></td>
<td></td>
<td>803.0</td>
<td>100%</td>
<td>821.9</td>
<td>100%</td>
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<tr>
<td></td>
<td></td>
<td>838.2</td>
<td>100%</td>
<td>429.7</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Volume of captured methane (drainage)</strong></td>
<td>mln m³</td>
<td>%</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>227.6</td>
<td>28.3%</td>
<td>250.9</td>
<td>30.5%</td>
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<td>259.7</td>
<td>31%</td>
<td>146.4</td>
<td>34%</td>
</tr>
<tr>
<td><strong>Volume of utilized drainage methane</strong></td>
<td>mln m³</td>
<td>%</td>
<td></td>
<td></td>
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<td></td>
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<td>167.1</td>
<td>73.4%</td>
<td>180.9</td>
<td>72.1%</td>
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<tr>
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<td>187.9</td>
<td>72.3%</td>
<td>103.8</td>
<td>70.9%</td>
</tr>
</tbody>
</table>

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TOTAL GAS RELEASED DURING MINING OPERATIONS (about 838.2 mln m³) 821.9 mln m³ in 2013

Drainage gas 22.4%

Ventilation Air Methane (VAM) 77.6%
Changes of absolute gasiness versus decrease of active gassy coalmines' number

- **Y-axis (Left):** Number of coalmines exploiting gassy coal seams
- **Y-axis (Right):** Absolute gasiness in mln m³/year
- **X-axis:** Years from 1989 to 2005

The graph shows a decrease in the number of coalmines exploiting gassy coal seams from 1989 to 2005, while the absolute gasiness increases over the same period.
Poland Coal Sector Update

- New trends in the energy sector

Support system for CBM & CMM in Poland

Since March 11th, 2010 there is a support system for electricity produced from high efficiency cogeneration (Primary Energy Saving> 10%) from CBM and CMM.

This system is a real financial support for the efficient utilisation of CBM and CMM.

According to the energy law records, this system, will be valid until the year 2018
CMM Project Outlook

- Challenges to emission reduction projects in Poland
  
  - Lack of clear incentives for methane capture and utilisation *e.g. production of electricity from VAM, CMM, CBM which could be easily utilised by the coal mines*

  - Concern that it could have impact on renewable energy prices *(analysis needed ?)*
CMM Project Outlook (2)

- Approaches to overcoming challenges
  - Legislation and regulation
  - Policies and incentives
  - Energy pricing reform
  - Capacity building
    - Technology transfer (need for effective surface and underground directional drilling technology)
    - Training and workshops (surface and underground directional drilling technology)
    - Polish Geological Law (after latest modifications) classifies CBM exploratory works similar like shale gas operations....
  - Agreements and/or partnerships

Polish Mining is open for cooperation and investors
Anticipated or planned projects

Ministry of Environment Project:
methane drainage ahead of mining using surface directional drilling wells – in progress – getting ready for fracturing

Individual talks of Drilling Companies with mining operators …purchase of new underground drilling equipment (directional)
Conclusions – potential

- **22.4%** of total methane released during mining is being utilized
- Small increase in drainage methane utilization: **72.3%** from **72.1%** (in 2012)
- Still venting to the atmosphere drainage gas - last year: **71.8 mln m3** – ready resource to utilize!
- **650.3 mln m3** VAM (including a.m. **71.8mln m3**) is ready to manage (subject study?)

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Poland Coal Sector Methane Action Plan

- Status of Coal Sector Methane Action Plan development (under construction…)

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