



# ICE-CMM POLAND

## Activity, Project and Future Plans

Piotr Kasza, Artur Badyłak, Janusz Jureczka,  
Zbigniew Lubosik, Marek Borowski, Grzegorz Plonka

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## Agenda

- ✓ **The role and principles of operation of ICE CMM Poland**
- ✓ **Projects completed and in progress by companies associated with the Centre**
- ✓ **Planned projects**



## The role and principles of operation of ICE CMM Poland

- ✓ The world's first International Center of Excellence for Methane from Coal Mines in Poland on October 30, 2015 under the acceptance agreement between UNECE and the Central Mining Institute (GIG).
- ✓ In 2016, similar MoUs on accession to ICE-CMM were signed with UNECE by the remaining partners: PGNiG, PIG-PIB and INiG-PIB.
- ✓ The official inauguration of ICE-CMM took place in Katowice on June 7, 2017.





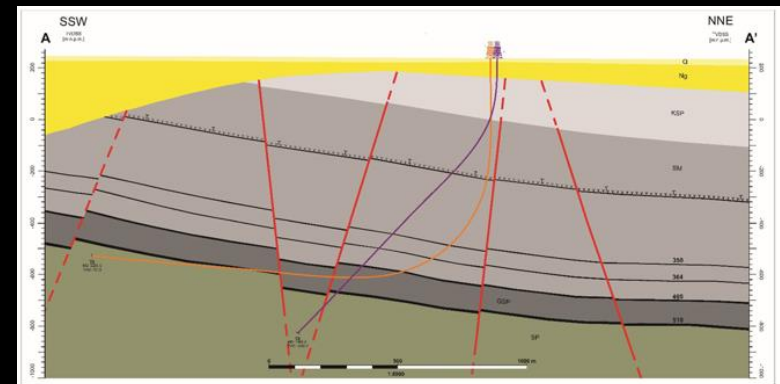
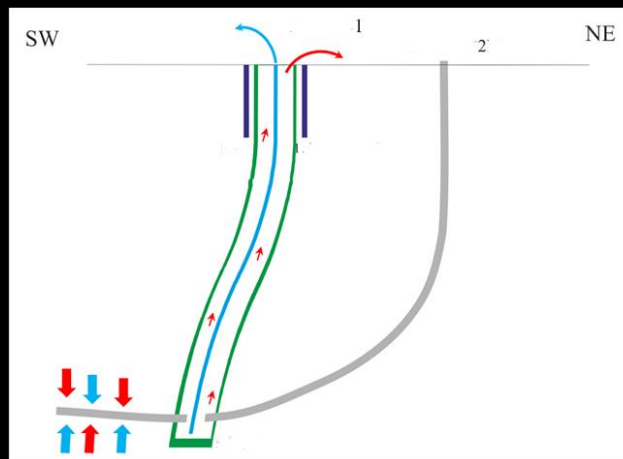
## The role and principles of operation of ICE CMM Poland

- ✓ The Center's activities are consistent with the mandate of the Expert Group and declared in the MoU.
- ✓ Current members of ICE-CMM Poland: JSW, GIG-PIB, PIG-PIB, INiG-PIB, AGH, PGG, LW Bogdanka.
- ✓ Each of the Institutions associated in the Centre delegates its representative to the Presidium.
- ✓ The Center's activities are financed by membership fees paid by its members.
- ✓ ICE-CMM Poland works closely with the UNECE Group of Experts on Coal Mine Methane and Just Transition
- ✓ ICE-CMM Poland annually submits a work plan for the next year of activity and a report on the activities carried out, which are subject to assessment and approval by the Group of Experts.

## Projects completed and in progress by companies associated with the Centre

### CBM projects in Poland

- ✓ To support development of CBM production technologies.
- ✓ Development of directional drilling technologies and methane production stimulation of experimental wells.
- ✓ Comprehensive evaluation of CBM gas production.





## Projects completed and in progress by companies associated with the Centre



### ADVANCED METHANE DRAINAGE STRATEGY

employing underground directional drilling technology for major risk prevention and greenhouse gases emission mitigation

Duration: July 2019 – December 2023

- ✓ **Far-reaching goals of the project included:**
  - increased safety of staff through methane hazard mitigation,
  - economic benefits resulting from faster advancement of longwall production and reduction of methane hazards mitigation costs, additional energy source recovery, longer drainage time,
  - environmental benefits resulting from reduced GHG emission,
  - Possible technology transfer for goaf gas drainage.



## Projects completed and in progress by companies associated with the Centre



- ✓ The results of the DD-MET project were implemented at Staszic-Wujek Coal Mine, where benefits were confirmed in three areas: safety, economics, and the environment.
- ✓ Long Reach Directional Drilling (LRDD) technology with optimising directory is very efficient in methane drainage efficiency.
- ✓ The LRDD boreholes generated over twice the volume of methane compared to the CM boreholes.
- ✓ The gas produced by the LRDD boreholes had with an average of 82% methane, as opposed to the CM boreholes, which had an average of only 30%.
- ✓ LRDD boreholes placed between 20 and 35 m above the coal seam in the overlying strata were the most effective in methane drainage.
- ✓ Combining CM boreholes with LRDD boreholes provides an overall system of draining active longwalls with a capture efficiency of greater than 50%.
- ✓ LRDD boreholes will improve mine safety, increase coal production, and reduce methane emissions.



## Projects completed and in progress by companies associated with the Centre



Duration: December 2022 – November 2026

### **EUROPEAN MINING IN THE GREEN AND DIGITAL ERA**

to develop technological and methodological solutions for the sustainable and innovative development of the mining industry

- ✓ Participants in the project are mines from Europe and South Africa extracting: tungsten, tin, magnetite, magnesite, chromite, phosphate, copper, silver, gold, cobalt, platinum, palladium, rhodium, coking coal, coke

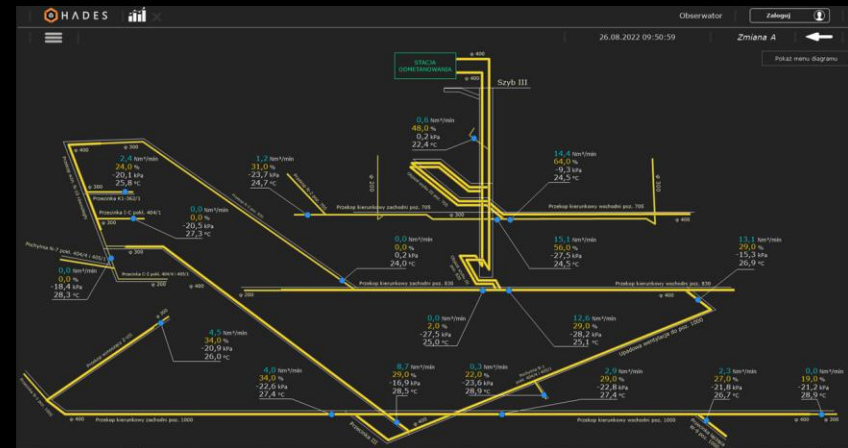




## Projects completed and in progress by companies associated with the Centre



- ✓ Polish partners involvement in the project (JSW S.A. and GIG) will focus on the development of an intelligent network to support the optimal methane drainage of hard coal mines.
- ✓ A network concept will be developed covering both hardware needs and the necessary software.





## Projects completed and in progress by companies associated with the Centre



Duration: February 2023 – July 2027

- ✓ Building a spatial and flow model of methane accumulation in goafs,
- ✓ Identification of methane accumulation locations in the reservoirs,
- ✓ Directional drilling to extract methane from selected goafs,
- ✓ Sealing post-mining goafs,
- ✓ Analysis of methane emissions into ventilation air and atmosphere,
- ✓ Concept, design and construction of methane drainage installation with reduced methane content,
- ✓ Production of electrical energy and heat in specially designed gas engines.



## Projects completed and in progress by companies associated with the Centre



- ✓ REM Project in Pniówek Coal mine
- ✓ REM project methane capture forecast in 2027 – 14 mln m<sup>3</sup>



Energy production  
60 000 MWh/year



Planned project to be carried out by companies associated with the Centre

## METH2GEN



The METH2GEN project addresses reducing methane emissions from multi-seam coal mines and producing clean energy from captured methane

- ✓ using the Long Reach Directional Drilling (LRDD) technology as a mine methane drainage system,
- ✓ decrease methane content in VAM,
- ✓ innovative utilization of excess gas, which cannot be converted in to electricity, to generate hydrogen via Steam Reforming (SMR),
- ✓ produced CO<sub>2</sub> during the process will be utilized in mine fire prevention systems and/or alternative pro-ecological strategies is CO<sub>2</sub> sequestration within the goaf zone.



# Thank you for your attention



<https://www.cmm-energy.eu>

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