Iceland
Liechtenstein
Norway grants

Presentation of IGSMiE PAN Activities

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IGSMiE PAN
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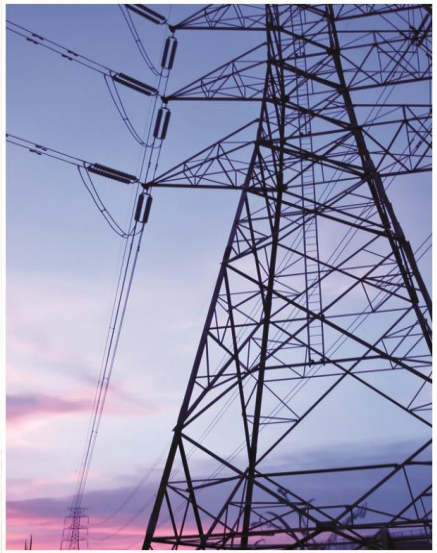
MINERAL AND ENERGY ECONOMY RESEARCH INSTITUTE POLISH ACADEMY OF SCIENCES (MEERI PAS) KRAKÓW, POLAND

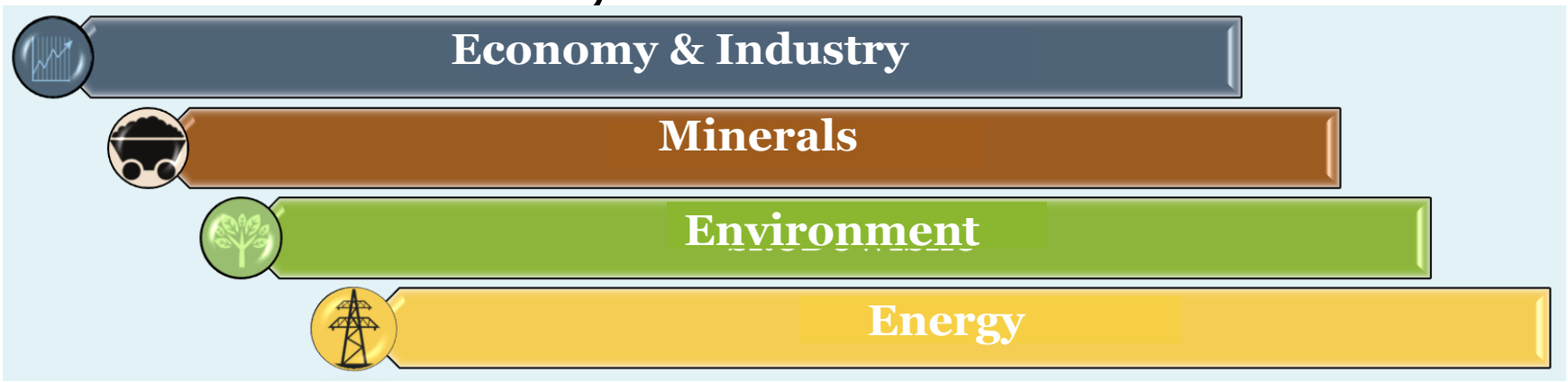




Economy | Minerals | Environment | Energy

About Institute

- Mineral and Energy Economy Research Institute was established in 1986 in Krakow as a constituent unit of the Polish Academy of Sciences.



- Highly interdisciplinary research activity of MEERI PAS in the area of minerals and energy management covers such subjects as: mining, geology, power engineering, environmental engineering, supplemented by issues related to economics, law, geophysics, chemical engineering, materials science processing engineering.

Mission of Institute

- Mission of the Mineral and Energy Economy Research Institute, Polish Academy of Sciences is to deliver modern, economic, ecological and social solutions serving sustainable development of Poland and its regions in the area of minerals and energy, implemented under motto:

Minerals and Energy for Society

- This mission is to be implemented through rationally programmed and interrelated R&D, organizational, technical and economic activities in the areas:

Sources – Technologies – Economics

– Market – Environment

in the scientific triangle:

Research – Innovation - Education

ORGANISATION STRUCTURE OF RESEARCH LINE OF MEERI PAS

DEPARTMENT OF STRATEGI POLICY AND RESEARCH	• Division of Strategic Research • Division of Energy Economics • Division of Sustainable Development of Minerals and Energy
DEPARTMENT OF MINERALS AND ENERGY MARKET RESEARCH	• Division of Minerals Production • Division of Fuels and Energy Market Research • Division of Mineral Policy • Division of Economic Geology
DEPARTMENT OF GEOENGINEERING AND ENVIRONMENTAL ENGINEERING	• Division of Geoengineering and Environmental Engineering • Division of Geotechnology • Division of Applied Geochemistry and Environmental Engineering
DEPARTMENT OF RENEWABLE ENERGY AND ENVIRONMENTAL RESEARCH	• **Division of Renewable Energy** • Division of Environmental Studies and Waste Management • Division of Structural Analyses and Geological Cartography

Employment structure in MEERI PAS

Employee group	Number
Professors	9
Assistant professors	15
Doctors	18
Assistants (MSc)	38
Others	28
TOTAL	108

MEERI PAS international projects

Type of the project	Number of projects
5th EU Framework Programme	5
6th EU Framework Programme	7
7th EU Framework Programme	4
Horizon 2020	2
Others international	13
Structural funds	9
Foresights	3
Total	43

MEERI PAS
Publishing activity

Scientific journals:

- **quarterly** Mineral Resources Management/Gospodarka Surowcami Mineralnymi – JCR-listed journal, Impact Factor 0.567 in 2015
- **quarterly** Energy Policy Journal/Polityka Energetyczna
- **half-yearly** Geological Exploration Technology Geothermics, Sustainable Development/Technika Poszukiwań Geologicznych. Geotermia Zrównoważony Rozwój
- **aperiodical** Bulletin of the Mineral and Energy Economy Research Institute of the Polish Academy of Sciences/Zeszyty Naukowe Instytutu Gospodarki Surowcami Mineralnymi i Energia PAN

Scientific books:

- scientific monographs series STUDIA ROZPRAWY, MONOGRAFIE (published ca. 200 volumes since 1988)
- Mineral Resources of Poland/Surowce Mineralne Polski

For whom we work:

- governmental bodies (central and regional),
- municipalities,
- operators,
- associations,
- private companies,
- foreign companies,
- higher education, science and research institutes

Projects and research works realized by MEERI PAS in the years 2013-2016 with sources of their financing

	Type of project/work	Number of projects	Total budget for MEERI PAS (PLN)
1.	International scientific and research projects	23	2 460 584
2.	Domestic scientific and research projects	17	4 056 214
3.	Projects and works for companies	184	25 905 784
4.	Projects and works for Ministries and local governments	72	1 765 945
TOTAL		296	34 188 527

MEERI PAS activities in the geothermal area: Division of Renewable Energy

- Leading body in geothermal energy research, R&D, projects development and operation of geothermal plants in Poland
- Cooperation with leading scientific institutions, companies and Non-Governmental Organisations

MEERI PAS office building
Wybickiego 7A, 31-261 Krakow

Podhale Region: MEERI PAS Geothermal Laboratory
1st in Poland Experimental Geothermal Plant in 1993

The most important MEERI PAS scientific achievements in Renewable Energy Sources area

- Design and constructing the Poland's first experimental geothermal plant Bańska - Biały Dunajec,
- The first in Poland reconstruction of existing deep well Mszczonów IG-1 for heating purposes,
- Methods and assessment of the environmental effects of RES' usage,
- Elaboration the guidelines to improve the injectivity of reservoir rocks while injecting geothermal waters in Polish geothermal plants,
- Structural and digital models of the subsurface structure of many geostructural basins in Poland,
- Numerical modelling of heat and mass flow in the geothermal reservoirs,
- Mathematical modelling of energy systems (direct use of geothermal systems), the optimal management of geothermal waters to obtain heat and electricity in selected area of Podhale,
- Elaboration an atlas of geothermal waters for the combined electricity and heat generation applying binary systems in Poland,
- Effective use of geothermal water and energy, ex. for heating, balneotherapy, wood drying, agriculture, fish farming and drinking water production on the basis of cooled geothermal water (using membrane processes),
- Demonstrating of cascade use of geothermal energy.

The most important EU projects related to geothermal energy use with MEERI PAS as participant

- **CLENSYS** – Cleaner Energy Systems through Utilization of Renewable Energy Resources (2002-2003, 5FP);
- **IGET** – Integrated Geophysical Methods for Exploration of Deep Geothermal Systems (2005-2009, 6FP);
- **GTR-H** – Geothermal Regulations – Heat (Altener, 2006 – 2009)
- **GeoCom** – Geothermal Communities: Demonstrating the Cascading Use of Geothermal Energy for District Heating with Small Scale RES Integration and Retrofitting Measures (2010 – 2014, 7 FP)
- **GeoDH** – Promote Geothermal District Heating in Europe (IEE, 2012-2014)
- **EEA – Geothermal Projects in Poland** supported by EEA Financial Mechanism (2016-2017)
- **EUBILD-UNAKLIM** – European Educational Concept in Environmental-Nature- and Climate-Protection to Safegueard Cross-Border Sustainable Development (2016-2018)

The most important domestic projects related to geothermal energy performed by MEERI PAS (Division of Renewable Energy)

1. **Obtaining of drinking water and liquids and balneological substances in the treatment of cooled thermal waters**. NCBiR PBS3 Project No. 245079, Project consortium: MEERI PAS (project leader), AGH UST. Project duration: 2014 – 2017
2. **Use of geothermal waters for combined production of electricity and heat using binary systems in Poland.** Research project No. 398/2011/Wn-06/FG-hg-th/D, ordered by Ministry of Environment, founded by National Fund of Environmental Protection and Water Management. Project consortium: MEERI PAS (project leader), PIG-PIB, AGH UST. Project duration: 2011 – 2014
3. **Evaluation of potential, thermal balance and prospective geological structures for needs of Enhanced Geothermal System in Poland.** Research project No. 122/20/Wn-07/FG-GO-TX/D, ordered by Ministry of Environment, founded by National Fund of Environmental Protection and Water Management. Project consortium: PIG-PIB (project leader), MEERI PAS, AGH UST, PBG Ltd. Project duration: 2010 – 2013
4. **Develop design guidelines to improve absorption of reservoir rocks in connection with the injection of thermal waters in the Polish geothermal plants.** Research Project No. 507/2009/Wn-07/FG-GO-TX/D, ordered by Ministry of Environment, founded by National Fund of Environmental Protection and Water Management. Project consortium: Geotermia Mazowiecka (project leader), MEERI PAS. Project duration: 2009-2011
5. **Analysis of possible use of geothermal waters of the Carpathian Foredeep for balneotherapy and recreation and heating purposes**. KBN research & development project No. 0474/R/T02/2009/06. Project consortium: AGH UST (project leader), PIG-PIB, UJ, MEERI PAS, Geofizyka Kraków Ltd., PGNiG S.A. Project duration: 2009–2012
6. **Atlas of geothermal waters and energy resources in the Western Carpathians.** Research project No. 95/2009/Wn-06/FG-hg-tx/D, ordered by Ministry of Environment, founded by National Fund of Environmental Protection and Water Management. Project consortium: AGH UST (project leader), PIG-PIB, MEERI PAS, Geofizyka Kraków Ltd., PGNiG S.A. Project duration: 2009 – 2011

Division of Renewable Energy – examples of works done on request of the commercial partners with practical implementations

- Bujakowski W., Barbacki A., Bielec B., Hołojuch G., Kasztelewicz A., Kępińska B., Miecznik M., Pająk L., Skrzypczak R., Tomaszewska B., 2015, **Application for concession for the exploitation of thermal waters (with thermal properties) from Skierniewice GT-1 and Skierniewice GT-2 wells**. For: Zakład Wodociągów i Kanalizacji, Skierniewice.
- Bujakowski W., Barbacki A., Bielec B., Hołojuch G., Kasztelewicz A., Kępińska B., Miecznik M., Pająk L., Skrzypczak R., Tomaszewska B., 2014, **Hydrogeological documentation establishing resources exploitation of thermal waters from Eocen and Triassic formation recognized by Bańska PGP-3 well**. For: PEC Geotermia Podhalańska S.A.
- Bujakowski W., Barbacki A., Bielec B., Hołojuch G., Kasztelewicz A., Kępińska B., Miecznik M., Pająk L., Skrzypczak R., Tomaszewska B., 2014, **Execution of recipes (know-how) treatment of water in terms of sulfur and iron**. For: EGM – Kraków.
- Bujakowski W., Barbacki A., Bielec B., Hołojuch G., Kasztelewicz A., Kępińska B., Miecznik M., Pająk L., Skrzypczak R., Tomaszewska B., 2013, **Geological documentation containing establish the resources of thermal waters with medical properties for doublet wells „Skierniewice GT-1" i „Skierniewice GT-2"**. For: Zakład Wodociągów i Kanalizacji Skierniewice.

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