

Foreword

Mineral Resources & Energy Congress (SEP) is the largest and the most important conference in Polish mining industry

Participants of the Mineral Resources & Energy Congress never imagined that we would be put in a situation where a war would be waged just beyond our borders by a crazed aggressor such as Vladimir Putin and the Russian army. On February 24 2022, Russia invaded Ukraine. The ensuing war has united the democratic countries of the world in support of Ukraine, one not limited to marginal initiatives, as was the case with the annexation of Crimea. They have taken swift and decisive action in the form of severe sanctions, e.g. The United States and the European Union have agreed on the conditions under which Europe is to gradually become independent from Russian natural gas (one of the main raw materials creating Russian revenues), as well as oil and hard coal. Every war is a destructive action that wreaks great havoc and perturbation in the economy, which will be discussed below, and means negative consequences in the life of each of us.

“No one who has survived the war as a soldier, a civilian, or an impartial witness becomes the same man as he was. War enriches the psyche, but on the other hand, it cripples it. After the war, we know more about life because we learned something new about death. Death in war is always unnatural. Communing with it numbs and mutilates a person, and in psychopaths it awakens addiction like a drug. That is why every tenth participant of the war returns to a house that is falling apart, because the force of destruction with which he returned is greater than the strength of the foundations”, writes Krzysztof Mroziejewicz in his book “Correspondent, or how to describe the creeping end of the world” (Zysk i S-ka, Poznań, 2013).

The war has turned upside down the current approach to the European Union’s energy policy, but it will also change the image of our energy and raw material security, which is referred to in this book composed of articles of XXXIII Mineral Resources & Energy Congress (Cracow, Poland, February 26 – 28, 2024). According to Eurostat, in 2020, imports to the European Union countries from Russia accounted for as much as 49.1% of total imports for hard coal, 34.5% for gas and 25.7% for oil. In the case of Poland, coal imports from Russia amounted to 75% of the total (approx. 9 million tonnes), natural gas to 55% (9.6 billion m³), crude oil to 65% of total imports (16.8 billion tonnes).

But let’s get back to the XXXIII Mineral Resources & Energy Congress. The largest annual meeting of representatives of the world of science and industry related to the broadly understood mineral resources industry in Europe has become history. The Congress 2024 was attended by nearly seven hundred participants from Poland and abroad, all related the mineral resources and energy economy. During three days of the meeting, 212 papers were presented in 23 thematic sessions, including four translated simultaneously, three discussion panels as well as training workshops.

The plenary session of the Congress 2024 was devoted to the energy transformation, which is increasingly leaving its mark on the production means of the entire European industry. As always, the sessions New techniques and technologies in underground mining and Mining Geomatics had their loyal participants, this time covering issues in the field of modelling the exploitation process and mine surveying using remote sensing and low-level photogrammetry.

During the sessions Automatisation and monitoring of production process in underground mines – polish experiences in implementing the INDUSTRY 4.0 paradigm and Mining in the

era of Green Transformation, participants received unique scientific monographs constituting the essence of the presented speeches.

The topic of Mining 4.0 – new look on an industry that for many years has been the foundation of development for our civilization – was introduced with a bang by the session Digital transformation and AI in the industry – artificial intelligence in exploration and exploitation of mineral resources, broadcasted online during the Congress’s meeting.

The now permanent element of the Mineral Resources & Energy Congress sessions has become ISAC GIG CyberPoligon, practical workshops organized for companies from the mining and energy sector, during which participants received training in a realistic environment in detecting and responding to simulated cyberattacks. This year’s competition gathered nearly 150 participants, and Cyberpoligon was won by the team from JSW ITS. Second place was taken by the KGHM Polska Miedź SA team, and third place was taken by LW Bogdanka SA.

Traditionally, the finale of the Mineral Resources & Energy Congress was the Gala organized at the Juliusz Słowacki Theatre, during which awards were presented in the Safe Mine competition, CyberPoligon and the student Mining Knowledge Tournament.

This year's Gala was preceded by a discussion panel organized on the initiative of the Mineral Resources & Energy Congress on the new strategic program launched by the National Center for Research and Development entitled “IMPROVING WORK SAFETY IN MINING 2030”. The discussion among experts and in the presence of the President of WUG Mining Office was led by Professor Antoni Tajduś, Chairman of the Committee for Work Safety in Mining at the State Mining Office.

The XXXIII Mineral Resources & Energy Congress closed with a day devoted to energy and renewable energy sources (RES) on Wednesday, February 28, the highlight of which was a panel discussion on community energy. The Mineral Resources & Energy Congress is now more than just a conference. Over three decades of activity in the field of scientific and technical problems related to the broadly understood mining industry have turned the Congress to the most opinion-forming European conference thematically related to the management of mineral resources.

Ladies and Gentlemen, the ongoing race for mineral resources will bring far-reaching changes to the global and European economy, but it will also leave a mark on climate policy activities. The International Monetary Fund writes about a possible “fundamental change” in the global political and economic order. In addition to the human suffering and the huge number of refugees, the war will increase food and energy prices, fuel inflation and lower incomes, disrupt trade and supply chains, increase investor uncertainty, which is increasingly evident and will undoubtedly have a powerful impact on economic growth. Ukraine, for example, is one of the largest grain producers in the world and food prices will rise within a few months. Russia is a major supplier of coal, natural gas and oil, as well as many metals that the US, EU, Australia, Canada, and the UK consider critical materials. It supplies 30% of platinum metal, 13% of titanium, 11% of nickel to the world market. This dependency bodes ill for many supply chains. The current situation means one thing – strengthening China’s position in the global supply chain, but also ... in economic terms. American writer Helen Keller once said that life is either a great adventure or nothing. So let us be united by our passion – mining, raw materials, and energy. Let’s meet again next year in Krakow in February 2025 – it’s worth it!

dr inż. Jerzy Kicki

Chairman of the Organizing Committee
Mineral Resources & Energy Congress