



2023 IEEE International Conference on Energy Technologies for Future Grids (IEEE ETFG 2023)

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SPECIAL SESSION

Energy Technologies for Mining Decarbonization

Mining will be a key part of reaching net-zero carbon emissions by 2050, for many reasons. The global demand for mining commodities is undergoing significant structural changes. While the share of combustible fossil fuels will see a continuous reduction, many of the mining commodities (iron, aluminium, rare earth metals) will remain critical for the “green revolution” technologies (such as wind and solar generation, battery technologies, electric vehicles). Mining companies operating in the modern world are strategically focused on reducing environmental impacts associated with the extraction and processing of metals and minerals. One major area of concern, fugitive methane emissions, is being tackled by advancing the methane capture and utilization technologies. Another area with a large decarbonization potential is related to improving the operational efficiency and reducing power consumption by the mining industry. In the countries like Australia, where the mining sector accounts for more than 10% of energy use, such improvements will translate into significant energy and greenhouse gas savings. This Special Session calls for papers that focus on technologies and processes (used in or related to mining industry) that improve energy efficiency and reduce greenhouse gas emissions. The papers should cover topics such as, but not limited to:

1. Advanced methane capture and utilization technologies;
2. Electrification of mining machines, processes and technologies;
3. Using more electricity and alternative forms of energy (e.g. hydrogen) in mining transport;
4. Integration of distributed and renewable energy sources (solar, wind, hydrogen) to support autonomous and semi-autonomous mining operations;
5. Mining microgrids and associated control strategies;
6. Energy storage and management systems for mining electricity supplies;
7. Improved security and resilience of autonomously powered mining systems;
8. Techno-economic analysis and feasibility studies of low-carbon mining operations;

Special Session Panelists:

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Conference Website: <https://attend.ieee.org/etfg-2023/>

Track SS2: Mining Decarbonization

Paper Submission Site: <https://cmt3.research.microsoft.com/IEEEETFG2023/>