

Special Issue

Emerging Topics in Future Energy Materials—2nd Edition

Message from the Guest Editor

Human-generated greenhouse gas (GHG) emissions intensify the greenhouse effect, driving global warming and climate change. These emissions consist largely of carbon dioxide from burning fossil fuels. Energy materials are thus essential to build Europe's clean technology value chains and achieve EU climate neutrality by 2050. Short-term decarbonization will rely heavily on renewable electrification of construction, transport, and power—key to cost-effective emissions reduction. Sustainable solutions like electric/hydrogen mobility, solar power, near-zero-energy buildings, and improved air and water quality will enhance urban livability. However, growing EU demand for critical raw materials such as rare earths and lithium increases import dependence, creating strategic and economic risks. This surge, accelerated by green and digital transitions, requires securing supply chains to reduce vulnerabilities. Meeting EU climate targets depends on developing advanced, sustainable, and non-toxic energy materials—ideally from natural sources or biowaste using green methods—along with enhanced metal recovery, reuse, and recycling.

Guest Editor

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Energies is an international, open access journal in energy engineering and research. The journal publishes original papers, review articles, technical notes, and letters. Authors are encouraged to submit manuscripts which bridge the gaps between research, development and implementation. The journal provides a forum for information on research, innovation, and demonstration in the areas of energy conversion and conservation, the optimal use of energy resources, optimization of energy processes, mitigation of environmental pollutants, and sustainable energy systems.

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