

Special Issue

Wind Power Generation and Wind Energy Utilization

Message from the Guest Editors

Wind energy is vital for transitioning to cleaner power systems. Advances in data science—such as big data analytics, machine learning (ML), and artificial intelligence (AI)—enhance the efficiency and economic viability of wind generation. Utilizing large datasets allows researchers to improve resource assessments, optimize turbine performance, and lower maintenance costs. Predictive models foresee faults, enabling proactive maintenance. Robust forecasting tools are essential for grid stability, and integrating SCADA data, meteorological information, and real-time sensor readings enhances forecasting and planning, while digital twins improve monitoring and decision-making. This Special Issue invites contributions on data-driven solutions for wind power, including:

- Data analytics and AI for wind energy
- Wind forecasting methods
- Predictive maintenance in turbines
- Digital twin technologies
- Advanced sensor systems
- SCADA data management
- Grid stability and optimization
- Socio-economic implications of wind energy solutions

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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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