# Call for Papers

## Special Issue on "Machine Learning-Informed Decision-Making for Low-carbon Power and Energy Systems"

**Important Dates**

**Full Paper Submission:** September 30, 2024

**Final Decision Notification:** December 31, 2024

**Publication of Special Issue:** March 31, 2025

On the way to a carbon-neutral transition, current power and energy systems are much more complex than ever: high renewable energy penetration, multi-energy systems coupling, massive power electronics device integration, etc. Traditional physics-based modeling methods can hardly accurately model their complex operational characteristics, such as uncertainties, stability rules, etc. However, decisions for power and energy systems (e.g., generation/network planning, unit commitment, economic dispatch, voltage control) should be made based on an accurate understanding/modeling of these operation characteristics. Take optimal power flow (OPF) as an example; to ensure the safe and reliable operation of power systems, grid operators must steadily solve the non-convex and non-linear OPF problem for large power systems in potentially close to real-time conditions, which pose important computational challenges. However, the enormous amount of available data created by the digitalization of power systems, the recent breakthroughs in Machine Learning, and their use for informing advanced optimization frameworks are paving the way for new opportunities for grid operators to efficiently solve the decision-making problems.

To promote the theoretical, methodological, and practical breakthroughs in the field of Machine Learning-Informed Optimization applied to modern power and energy systems, the editorial board of the CSEE Journal of Power and Energy Systems (CSEE JPES) invites potential authors to submit articles for review and publication in the special issue of CSEE on Machine Learning-Informed Decision-Makings for Low-carbon Power and Energy Systems. Topics of interest include, but are not limited to:

- ✓ Prescriptive analytics for decision-making in power and energy systems
- ✓ Decision-focused Learning applied to power and energy systems
- ✓ Reinforcement Learning for decision-making in power and energy systems
- ✓ End-to-end learning for decision-making in power and energy systems
- ✓ Distributed Machine Learning in power and energy systems
- ✓ Interpretable Machine Learning in decision-making in power and energy systems
- ✓ Machine Learning for large-scale decision-making in power and energy systems
- ✓ Machine Learning for modeling complex constraints in decision-making in power and energy systems
- ✓ Data Management for Machine Learning-Informed decision-making in power and energy systems

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Submit your paper to CSEE JPES through: https://mc03.manuscriptcentral.com/cjpes

Please ensure to select **"Special Issue on Machine Learning-Informed Decision-Making for Low-carbon Power and Energy Systems"** under the Type category the submission process to direct the manuscript to this special issue.

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