IECON 2026
Doha, Qatar | 18-21 October
The 52nd Annual Conference of the IEEE Industrial Electronics Society

Call for Papers for the Special Session on

Artificial Intelligence Enhanced Energy Management for Sustainable Energy Systems

Organized and co-chaired by

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Technical Outline of the Session and Topics

The variability and unpredictability of renewable energy sources, such as solar and wind, pose significant challenges in maintaining the stability, efficiency, and resilience of sustainable energy systems (SESs). To tackle these challenges, emerging artificial intelligence (AI) tools offer the potential of dealing with large-scale data analysis and decision-making in the energy management of sustainable energy systems. In turn, these AI based applications in SESs can also promote the development of new AI algorithms, such as physics-informed learning, safe reinforcement learning algorithms, and optimization approaches. This special session solicits the latest advancements in AI-driven energy management technologies that support the transition towards sustainable energy systems. This special section aim to bring experts and researchers in IES communities together to share and discuss the latest advancements and challenges in the AI and their applications in sustainable energy management fields.

Topics of the session include, but are not limited to:

- Learning-Based Approaches for Energy Optimization and Transactive Energy Trading
- Data-Driven Approaches for Renewable Energy and Load Prediction
- AI-Driven Internet of Things (IoT) Technology for Energy Management Systems (EMS)
- AI-Driven Grid-Interactive Energy Management of Hydrogen-Based Microgrids
- Cloud-Edge Computing/Communication in Energy Managements
- Learning Based Grid-Forming Control for Sustainable Energy Systems
- Learning-Based Control Strategies for EMS in Sustainable Energy Systems
- Vulnerabilities and Trustworthiness of Machine Learning in EMS
- Game Theories for Optimal Decision Making in EMs of SES

Timeline for Authors

All the instructions for paper submission are available on the conference website. Please visit www.iecon2026.org or scan the QR code for the timeline.