

Call for Papers for the Special Session on

Smart and Secure Power Systems with Renewable Integration, Energy Storage, AI, and Cybersecurity

Organizers and Co-chairs

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Technical Outline of the Session and Topics

This special session explores cutting-edge advancements in smart grids, renewable energy integration, energy storage technologies, artificial intelligence, and cybersecurity in power systems. As global energy demands shift towards sustainable and efficient solutions, the integration of these technologies becomes increasingly significant. This session will explore the latest innovations driving the transition to more intelligent, resilient, and secure power systems. Topics will include the role of AI in optimizing grid operations, advanced energy storage systems for balancing renewable energy, and robust cybersecurity measures to protect the grid from emerging threats. The focus will be on presenting research that addresses the challenges and opportunities in developing intelligent, sustainable, and secure power systems, highlighting their critical role in the future of global energy infrastructure.

Topics of this Special Session Include but are not limited to

- Grid integration of solar, wind, and hybrid renewable energy systems
- Virtual power plants (VPP) and their role in renewable energy management
- Power-to-X technologies and their applications in energy systems
- Integration of IoT and digital communication technologies
- Real-time monitoring and adaptive control strategies
- Enhancing grid resilience through distributed intelligence
- Grid-scale energy storage solutions and their impact on grid stability
- AI-driven predictive maintenance and anomaly detection in power systems
- Innovative demand-side management and response strategies
- Blockchain and other secure communication protocols for power systems
- Cyber-physical security challenges in decentralized energy systems

Timeline for Author

Deadline for submission of special session papers March 15, 2025

Notification of acceptance March 31, 2025

Deadline for submission of final manuscripts April 15, 2025

All the instructions for paper submission are available on the conference website.

