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Special Session 08

Multi-timescale Modeling and Multi-objective Collaborative Planning of Distributed Energy Systems Based on Multi-element Energy Storage

Introduction and Topics

The rapid transition toward low-carbon energy systems and the increasing penetration of distributed renewable resources have significantly enhanced the complexity of modern energy networks. Distributed energy systems (DES), integrating renewable generation, flexible loads, and multi-energy storage technologies, are emerging as key enablers for sustainable and resilient energy infrastructures. However, their efficient planning and operation face critical challenges due to multi-timescale dynamics, heterogeneous energy carriers, and conflicting objectives such as economy, reliability, and environmental performance.

This special session focuses on multi-timescale modeling and multi-objective collaborative planning of distributed energy systems based on multi-element energy storage. By incorporating diverse storage forms (e.g., electrical, thermal, and hydrogen storage) and considering interactions across different temporal and spatial scales, the session aims to advance methodologies for coordinated optimization, flexible operation, and system-level integration. Contributions addressing theoretical developments, advanced optimization techniques, data-driven methods, and real-world applications are highly encouraged.

Topics including but not limited to:

1. Multi-timescale modeling of distributed energy systems
2. Coordinated planning of multi-energy systems with hybrid storage
3. Multi-objective optimization for energy, economy, and emissions
4. Integrated electricity-heat-hydrogen energy systems
5. Active control and scheduling of multi-element energy storage
6. Data-driven and AI-based planning methods for DES
7. Flexibility enhancement and resilience analysis in energy systems

Special Session Chairs

Dr. Xu Liu
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Paper Submission

Submission Method

* View paper submission instruction on website
https://www.ieee-icps.com/sub.html

* Submit your paper through the website or QR code
https://easychair.org/conferences/?conf=ieeeicpsasia2026

Important Dates

Submission Deadline	May 25, 2026
Notification Deadline	June 10, 2026
Early-bird Registration Deadline	June 15, 2026
Author Registration Due	June 15, 2026

Publication

Submissions to IEEE I&CPS 2026 will be peer reviewed on the basis of technical quality, relevance to conference topics, originality, significance, clarity, etc. Accepted papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements.

Excellent papers will be recommended for review by **IEEE Trans on Industry Applications** (proportion can reach up to 50%), **Global Energy Interconnection** and **DeCarbon**.

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