

Special Session 39: Planning, Operation, and Trading of Distributed Smart Grids Based on Artificial Intelligence

Session Organizer:

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Brief Description of the Session Thematic:

At present, distributed generation, energy storage, adjustable load and other resources at the end of the power grid have entered the stage of large-scale development. The amount of distributed resources is large and volatile, and it is difficult to directly regulate them. The traditional centralized control operation mode is no longer applicable. The 11th meeting of the Financial and Economic Commission of the CPC Central Committee clearly proposed the development of distributed smart grid. Under the trend of green and low-carbon transformation of energy and large-scale development of distributed resources, conducting research on planning, operation, and trading technologies underpinned by artificial intelligence for distributed smart grids holds crucial theoretical and practical significance for the sound development of China's energy and power industry.

Topics and Keywords:

This session will consist of lots of topics such as -

1. Capacity planning and modeling of distributed smart grid;
2. Self-disciplined control technology of distributed smart grid;
3. Collaborative operation control technology of distributed smart grid;
4. Collaborative operation technology of source, load and storage adapted to the development of distributed smart grid;
5. Carrying capacity technology of distributed smart grid;
6. Market transaction strategy adapted to the development of distributed smart grid;
7. Control architecture of distributed smart grid;
8. Efficient solution algorithm adapted to the characteristics of distributed smart grid.

The aim of this session is to showcase and promote the latest advancements in the field of distributed smart grid, and to effectively facilitate the sharing and communication of the most recent academic and technical achievements. We welcome original research articles, review papers, and case studies that demonstrate how advanced optimization and control methods can be applied in new ways to the planning, operation, and trading of distributed smart grids, enabling academics, professionals, industry insiders, and policy makers to collaborate and exchange their experiences.

Keywords: Distributed power supply; Artificial Intelligence; Renewable energy storage; Distributed smart grid; Distributed smart grid planning and operation;



Distributed smart grid self-discipline control technology; Multi-level coordination; Adjustable load; Carrying capacity analysis ; Trading strategy of distributed smart grid