

**Special Session 8**  
**Risk Assessment and Planning of Power Systems Integrated with High Penetration of Renewable Energies**

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**Scope of the Session:**

In recent years, development and utilization of renewable energies, such as wind and solar energies, have received increasing attention from the international community due to its advantages of recyclability and low carbon dioxide emissions, which has been driving by the global energy crisis and climate warming. Taking wind energy as an example, the installed capacity of wind turbine generators (WTG) all over the world increases by about 30% every year, and the installed capacity of WTGs will exceed 1 billion kW by 2020.

The intermittent and volatility characteristics of renewable energies make their efficient accommodation difficult, and threaten the operation security and reliability of power systems, especially in the conditions with high penetration of renewable energies. To improve the renewable energy accommodation and reduce greenhouse gas emissions in the future, it is of great significance to study the risk assessment techniques and planning techniques of power systems with high penetration of renewable energies.

In this session, we focus on the risk assessment and planning of power systems integrated with high penetration of renewable energies, which can be used to provide an important basis for the analysis of power systems economy, reliability and security.

Topics of interest include but are not limited to:

- Spatial-temporal correlativity analysis of the output of renewable energy stations
- Typical scenario generation method for power systems with high penetration of renewable energies
- Modeling and parameter identification for power systems with high penetration of renewable energies
- Medium- and long-term power load forecasting techniques
- Risk assessment of renewable energy stations
- Coordinated operation optimization for power systems with high penetration of renewable energies
- Risk assessment of power systems with high penetration of renewable energies
- Power system planning considering high penetration of renewable energies
- Weak-part identification of power systems with high penetration of renewable energies
- Reliability enhancement planning of power systems with high penetration of renewable energies