Special Session 7: AI-driven Participation Strategies in the Electricity Market and Operation Methods for New Energy

Session Organizers:

Yunhao Zhao, North Chian Electric Power University, zhaoyunhao@ncepu.edu.cn

Renewable energy generation such as wind power and photovoltaics has promoted the low-carbon transformation of the power system, but it has also greatly increased the difficulty of electricity market operation and power system scheduling. At the same time, renewable energy station units are widely distributed and difficult to operate, which increases the operational risks of the power system. To alleviate these challenges, artificial intelligence technology provides innovative solutions. By utilizing data-driven analysis techniques, the accuracy of renewable energy output prediction can be improved, achieving more accurate electricity market pricing strategies. Reinforcement learning can enhance the adaptability of power system scheduling strategies to the volatility and randomness of renewable energy output. In addition, the combination of ground orbit satellite images and AI analysis provides a user-friendly and precise operation and maintenance strategy for renewable energy stations. Therefore, this special meeting is committed to exploring innovative technologies for renewable energy station markets, operation and maintenance supported by artificial intelligence and digital technology, in order to enhance the economic and low-carbon sustainable development of smart grids.

Topics and Keywords:

1. Data-driven renewable energy participation strategy in the electricity market
2. The application of artificial intelligence technology in the electricity-carbon coupling market
3. Application of reinforcement learning in renewable energy operation strategies
4. Data-driven strategies for fast frequency control of renewable energy
5. Operation and maintenance strategies for renewable energy power stations driven by digital technology