

## //// Panel Session 04 ////

## Trustworthy AI for Low Carbon Energy Systems Operation and Control

## ○ INTRODUCTION AND TOPICS ○

The decarbonization of energy systems has posed unprecedented challenges in system complexity and operational uncertainty that render it imperative to exploit cutting-edge artificial intelligence (AI) technologies to realize real-time, autonomous power system operation and control. Nevertheless, it is of great importance to guarantee the interpretability and robustness of the developed AI-based operation and control methods before their large-scale implementation in practice. To this end, this panel session will delve into the transformative potential and the inherent challenges of deploying AI in the energy sector. Experts from academia, industry bodies will discuss cutting-edge AI technologies that ensure reliability, safety, and transparency in managing renewable energy resources and smart grids. The session aims to address critical issues such as data integrity, algorithmic fairness, cybersecurity, and the regulatory landscape to build a foundation of trust in AI-driven energy solutions. Attendees will gain insights into the latest research, real-world applications, and collaborative frameworks that foster a resilient and low carbon energy future.

## ○ PANEL SESSION CHAIRS ○

**Prof. Mingyang Sun** Peking University, China

Prof. Mingyang Sun is a Professor (Research) and the head of The Intelligent DEcision-mAking for Low carbon energy systems (IDEAL) Lab, at the College of Engineering, Peking University. Also, he is an Honorary Lecturer at Imperial College London, UK. He received his Ph.D. degree in Electrical and Electronic Engineering at Imperial College London in 2017. His research mainly focuses on the investigation of trustworthy AI for low carbon energy systems operation and control and cyber-physical energy systems security. He has authored more than 80 scientific publications in Nature Communications and leading power system journals, and top AI and security conferences. He is currently the Associate Editor of IEEE Transactions on Industrial Informatics, and IET Smart Grid. Furthermore, he has been selected as one of the National Young Talents funded by the NSFC and he is the PI/CO-PI for a series of key projects funded by the NSFC, National Key R&D Program of China, The Royal Society (UK), and China Association for Science and Technology.

**Prof. Can Wan** Zhejiang University, China

Prof. Can Wan is a Professor and the deputy head of the Electrical Engineering Department, at the College of Electrical Engineering, Zhejiang University. He received his Ph.D. degree from The Hong Kong Polytechnic University, Hong Kong, in 2017. His research interests include probabilistic forecasting, power system uncertainty analysis and control, renewable energy integration, and machine learning. He has been the first/corresponding author of more than 40 scientific publications in leading power system journals of IEEE PES Transaction Series. He is currently an Associate Editor of IEEE Transactions on Industry Applications and IEEE System Journal. He has been the Vice President of the IEEE IAS I&CPS 2021 Conference and the Chairman of the Technical Committee of several international conferences. Furthermore, he is the PI/CO-PI for a series of key projects funded by the NSFC, National Key R&D Program of China.

## ○ PAPER SUBMISSION ○

For panel sessions, please contact panel chairs at  
[Mingyang Sun\(smy@pku.edu.cn\)](mailto:smy@pku.edu.cn) or [Can Wan\(canwan@zju.edu.cn\)](mailto:canwan@zju.edu.cn)  
before submission.

## ○ ORGANIZATIONS ○

中国电机工程学会  
CHINESE SOCIETY FOR ELECTRICAL ENGINEERING沈阳工业大学  
SHENYANG UNIVERSITY OF TECHNOLOGY清华大学  
Tsinghua University