Special Session Proposal VIII

Special Session Basic Information:

专栏题目 **Session Title**	中文：新型配电系统运行调度技术及其商业模式 英文：Operational Dispatching Technologies and Business Models for Next-Generation Distribution Systems

专栏介绍和征稿主题
Introduction and topics

中文：为支撑“双碳”目标实现，构建适应高比例可再生能源接入的新型配电系统已成为电网转型的核心任务。配电网将承载分布式光伏、储能、虚拟电厂等海量分布式资源的规模化接入，并逐步演进为集发电、输电、储电、电力交易于一体的区域化新型电力系统，呈现电源多元化、运行数字化、设备新型化（如直流配电）、互动市场化等特征。这些变革对系统运行调度与商业模式提出全新挑战：一方面需解决分布式资源随机性带来的调度复杂性，另一方面亟需探索适应去中心化特性的市场机制。本分论坛将聚焦新型配电系统的运行优化技术与商业模式创新，重点探讨高渗透率分布式资源协同调度策略、源网荷储互动机制、电力市场交易架构设计等关键议题，推动构建安全高效、低碳智能的配电新生态。

英文：To support the achievement of carbon peak and neutrality goals, building a new distribution system accommodating high-penetration renewable energy has become a core mission of grid transformation. Distribution networks will host large-scale integration of distributed resources (e.g., distributed PV, energy storage, and virtual power plants), evolving into regionalized new power systems integrating generation, transmission, storage, and electricity trading. These systems exhibit diversified power sources, digitalized operation, new equipment (e.g., DC distribution), and market-oriented interactivity. Such transformations pose dual challenges: addressing the scheduling complexity caused by resource intermittency and developing market mechanisms for decentralized architectures. This session focuses on operational optimization technologies and business model innovations for next-generation distribution systems. Key topics include coordinated scheduling strategies for high-penetration distributed resources, source-grid-load-storage interaction mechanisms, and electricity market design, aiming to advance secure, efficient, low-carbon, and intelligent distribution ecosystems.

Special Session Chair(s):

姓名 **Name**	杨贺钧 Hejun Yang
称谓 **Prefix**	副教授 Associate Professor
部门 **Department**	电气与自动化工程学院 School of Electrical Engineering and Automation
单位 **Organization**	合肥工业大学 Hefei University of Technology
城市/地区 **City/Region**	安徽合肥 Hefei, Anhui Province

Organizer's Brief Biography

中文：杨贺钧，男，工学博士，合肥工业大学副教授，博士生导师，安徽省高端人才引育青年拔尖（青年学者）。2014 年毕业于重庆大学电气工程学院获工学博士学位，2012 年至 2013 年在台湾元智大学电机系进行博士生访学，2022 年至 2023 年在丹麦奥尔堡大学能源系进行国家公派访学。主持科研项目包括：国家自然科学基金（青年基金、面上项目）、安徽省自然科学基金（面上项目、联合基金重点项目）、国重实验室开放基金、校学术新人提升 B 计划、校科技创新培育重点专项及国家电网公司科技项目等多项，参与国家重点研发计划项目。在 IEEE、IET、IJEPES、电自等期刊和会议发表论文 70 余篇（含合作），授权（受理）发明专利 60 余项。获得省级电网公

司科技进步三等奖、安徽省教学成果一等奖、南瑞继保奖教金、远东奖教金、校讲课比赛三等奖、院级讲课比赛一等奖等奖项。担任 PCMP、《电力系统保护与控制》、《电力建设》、《电力科学与技术学报》、《南方能源建设》等期刊青年编委/编委。主要研究领域包括电力系统规划与可靠性、储能规划与运行技术、新型电力系统运行及商业模式等领域。

英文： Dr. Hejun Yang is an Associate Professor in the School of Electrical Engineering and Automation, Hefei University of Technology, China. He received the Ph.D. degree in Electrical Engineering from Chongqing University, Chongqing, China, in 2014. He ever visited Yuan Ze University in 2012-2013 and Aalborg University in 2022-2023. He has led some research projects including the national natural science foundation of China, Anhui provincial natural science foundation, funds of the state key laboratory, the fundamental research funds for the central universities of China, etc. He has published more than 70 papers in journals and conferences and authorized (applied) more than 60 patents. His main research interests focus on areas of power system planning and reliability, and energy storage planning and operations, new power electric distribution system operation and business models.

姓名 **Name**	孙健 Jian Sun
称谓 **Prefix**	副教授 Associate Professor
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Organizer's Brief Biography

中文：孙健，副教授，硕士生导师。2014 年 12 月获得重庆大学控制理论与控制工程专业博士学位。研究领域包括：智能电网、网络控制、信号处理、神经网络、动态系统故障诊断、信息物理融合系统等相关领域，提出了一系列智能电网强化学习安全控制方法，以及网络攻击下的车网互动智能安全控制方法，主持承担了相关国家自然科学基金项目，重庆市自然科学基金，重庆市技术创新与应用发展专项重点项目，以及多项国家电网公司科技项目，相关成果发表在 IEEE Trans. Smart Grid 等高水平刊物上，发表论文五十余篇，授权发明专利 27 项。

英文：Jian Sun received the B.E. and Ph.D. degrees in control theory and engineering from the College of Automation, Chongqing University, Chongqing, China, in 2009 and 2014, respectively. He was a joint Ph.D. student at the Department of Electrical and Computer Engineering, University of Wisconsin-Madison, USA, from 2012 to 2014, and a visiting scholar at the Center for Research on Microgrids (CROM), Department of Energy, Aalborg University, Denmark, from 2021 to 2022. He is currently an Associate Professor at the School of Electronic and Information Engineering, Southwest University, Chongqing. He has received funding from the National Science Foundation of China and Chongqing and has published many research results on smart grid security, including fault diagnosis, security control and cyber security of smart grids in dynamic/transient process. His research interests include smart grid, security control, vehicle to grid, cyber-physical security, fault diagnosis and neural networks.