//// Panel Session 01 ////

Optimal Regulation of Virtual Power Plant for Intelligent Energy Management

○ INTRODUCTION AND TOPICS ○

Under the "dual carbon" goals of the new electric power system, a vast number of heterogeneous and dispersed distributed resources are continuously emerging. To achieve the large-scale aggregation and coordination of these resources, a virtual power plant (VPP) has gradually become a focal point in the energy industry as a stable source-load interaction mode that can integrate and optimize various energy resources. VPP could effectively address the issues of task scheduling, resource allocation, and behavior coordination of massive distributed resources such as distributed power generation, energy storage systems, controllable loads, and charging piles in a complex and dynamic environment. Thus, it contributes to improving the operational efficiency and flexibility of the power system, reducing energy consumption, minimizing emissions, and promoting the sustainable transformation of the energy system.

To advance research and discussion in this field and share academic and technological achievements, this panel session intends to invite experts and scholars to explore the theoretical frameworks, methodologies, practical applications, and social significance of VPP optimization and control, which aims to enrich and improve the existing optimization theory system of power systems, provide feasible intelligent and automated solutions for the power industry, and promote the development of clean energy.

○ PANEL SESSION CHAIRS ○

Assoc. Prof. Xuguang Hu   Northeastern University, China

His main research content is intelligent modelling, data analytics and status awareness of energy systems. He has hosted over National Natural Science Foundation of China and horizontal projects of companies such as State Grid Corporation of China. As the first/corresponding author, he published over 20 papers in IEEE Transactions and excellent journals, and 5 ESI highly cited papers. Moreover, he won 3 provincial level awards and 2 international invention exhibition gold awards. The published monograph as a series of books on China's energy revolution and advanced technology, was selected for the special plan for the publication of national key books during the 14th Five Year Plan period. The relevant technological achievements have supported the construction and industrial development of energy systems in 7 provinces of China. He serves as the secretary of the Energy Internet Professional Committee of the Chinese Association of Automation and the Vice organizational committee chairman of the International Conference on Cyber-energy Systems and Intelligent Energies.

Prof. Dazhong Ma   Northeastern University, China

His main research interests include modelling and operation control of integrated energy systems, machine learning and its application in energy systems. He was selected for the National Youth High-level Talent Project, and has won 6 first prizes for scientific and technological progress at the provincial and ministerial levels, 2 second prizes, and 1 innovation prize for industry-university-research cooperation. He has presided over vertical projects such as joint key projects of National Natural Science Foundation of China (NSFC), surface projects of NSFC (2 projects), National Key Research and Development Program Key Scientific Issues Sub Project, Major Scientific Instrument and Equipment Development Key Special Sub Project, and horizontal projects of State Grid and other companies. He has applied for/authorized 32 Chinese invention patents, and 4 patents won 8 invention exhibition awards, including 4 gold awards, 1 special award, and 3 silver awards. In the past five years, he has published nearly 40 papers as the first/corresponding author in IEEE Transactions and excellent journals, and 8 ESI highly cited papers. He serves as the youth editorial board member of IEEE/CAA Journal of Automatica Sinica, Distribution & Utilization, and so on.

○ PAPER SUBMISSION ○

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before submission.

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