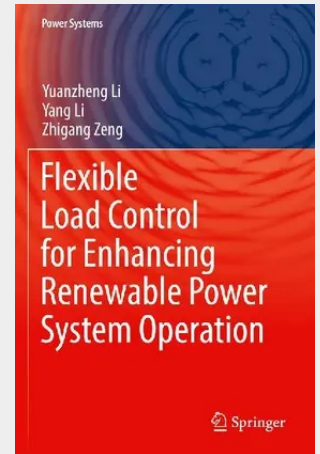


Flexible Load Control for Enhancing Renewable Power System Operation

This book addresses the pressing challenges faced by renewable power system operation (RPSO) due to the increasing penetration of renewable energy and flexible load. These challenges can be divided into two categories. Firstly, the inherent uncertainties associated with renewable energy sources pose significant difficulties in RPSO. Secondly, the presence of various types of flexible load, along with their complex constraint relationships, adds to the operational complexities. Recognizing the growing emphasis on the economic and low-carbon aspects of RPSO, this book focuses on the key issues of flexible load control. It mainly consists of following categories: (1) The control of data centers, a booming flexible load, to enhance RPSO through renewable energy integration and advanced robust multi-objective optimization. (2) The introduction of flexible industrial load control, employing effective demand-supply cooperative responding strategies for RPSO. (3) The exploration of electricvehicle flexible charging load control and centralized electric vehicle charging system control in the context of RPSO. The book also covers the emerging field of flexible integrated load control for renewable energy-based comprehensive energy system operation. Aimed at researchers, engineers, and graduate students in electrical engineering and computer science, this book provides a valuable resource for understanding and implementing flexible load control in the context of RPSO.

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