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| Nota di contenuto | Chapter 1: Introduction for Smart Grid Forecast and Dispatch -- Chapter 2: Review for Smart Grid Forecast -- Chapter 3: Review for Smart Grid Dispatch -- Chapter 4: Deep Learning Based Densely Connected Network for Load Forecast -- Chapter 5: Reinforcement Learning Assisted Deep Learning for Probabilistic Charging Power Forecast of Electric Vehicles -- Chapter 6: Dense Skip Attention based Deep Learning for Day-Ahead Electricity Price Forecast with a Drop-Connected Structure -- Chapter 7: Dirichlet Process Mixture Model Based on Relevant Data for Uncertainty Characterization of Net Load -- Chapter 8: Extreme Learning Machine for Economic Dispatch with High Penetration of Wind Power -- Chapter 9: Data-driven Bayesian Assisted Optimization Algorithm for Dispatch of Highly Renewable Energy Power Systems -- Chapter 10: Multi-objective Optimization Approach for Coordinated Scheduling of Electric Vehicles-Wind Integrated Power Systems -- Chapter 11: Deep Reinforcement Learning Assisted Optimization Algorithm for Many-Objective Distribution Network Reconfiguration -- Chapter 12: Federated Multi-Agent Deep Reinforcement Learning Approach via Physic-Informed Reward for Multi-Microgrid Energy Management -- Chapter 13: Supply Function Game Based Energy Management Between Electric Vehicle Charging |

Stations and Electricity Distribution System.

Sommario/riassunto

With the increasing penetration of renewable energy and distributed energy resources, smart grid is facing great challenges, which could be divided into two categories. On the one hand, the endogenous uncertainties of renewable energy and electricity load lead to great difficulties in smart grid forecast. On the other hand, massive electric devices as well as their complex constraint relationships bring about significant difficulties in smart grid dispatch. Owe to the rapid development of artificial intelligence in recent years, several artificial intelligence enabled computational methods have been successfully applied in the smart grid and achieved good performances. Therefore, this book is concerned with the research on the key issues of artificial intelligence enabled computational methods for smart grid forecast and dispatch, which consist of three main parts. (1) Introduction for smart grid forecast and dispatch, in inclusion of reviewing previous contribution of various research methods as well as their drawbacks to analyze characteristics of smart grid forecast and dispatch. (2) Artificial intelligence enabled computational methods for smart grid forecast problems, which are devoted to present the recent approaches of deep learning and machine learning as well as their successful applications in smart grid forecast. (3) Artificial intelligence enabled computational methods for smart grid dispatch problems, consisting of edge-cutting intelligent decision-making approaches, which help determine the optimal solution of smart grid dispatch. The book is useful for university researchers, engineers, and graduate students in electrical engineering and computer science who wish to learn the core principles, methods, algorithms, and applications of artificial intelligence enabled computational methods.