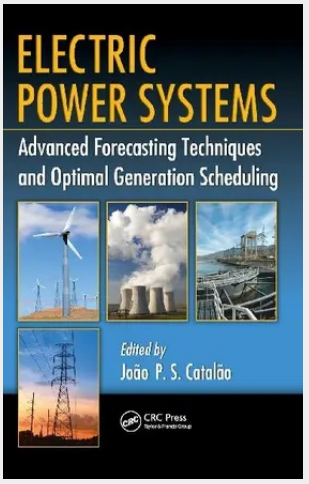
Catalão

Electric Power Systems

Advanced Forecasting Techniques and Optimal Generation Scheduling



Electric Power Systems: Advanced Forecasting Techniques and Optimal Generation Scheduling helps readers develop their skills in modeling, simulating, and optimizing electric power systems. Carefully balancing theory and practice, it presents novel, cutting-edge developments in forecasting and scheduling. The focus is on understanding and solving pivotal problems in the management of electric power generation systems. Methods for Coping with Uncertainty and Risk in Electric Power Generation Outlining real-world problems, the book begins with an overview of electric power generation systems. Since the ability to cope with uncertainty and risk is crucial for power generating companies, the second part of the book examines the latest methods and models for self-scheduling, load forecasting, short-term electricity price forecasting, and wind power forecasting. Toward Optimal Coordination between Hydro, Thermal, and Wind Power Using case studies, the third part of the book investigates how to achieve the most favorable use of available energy sources. Chapters in this section discuss price-based scheduling for generating companies, optimal scheduling of a hydro producer, hydro-thermal coordination, unit commitment with wind generators, and optimal optimization of multigeneration systems. Written in a pedagogical style that will appeal to graduate students, the book also expands on research results that are useful for engineers and researchers. It presents the latest techniques in increasingly important areas of power system operations and planning.

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330,70 €
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Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781439893944
Medium: Buch
ISBN: 978-1-4398-9394-4
Verlag: CRC Press
Erscheinungstermin: 07.03.2012
Sprache(n): Englisch
Auflage: Erscheinungsjahr 2012
Produktform: Gebunden
Gewicht: 807 g
Seiten: 462
Format (B x H): 161 x 240 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)