
Description: The latest practical applications of electricity market equilibrium models in analyzing electricity markets

Electricity market deregulation is driving the power energy production from a monopolistic structure into a competitive market environment. The development of electricity markets has necessitated the need to analyze market behavior and power. Restructured Electric Power Systems reviews the latest developments in electricity market equilibrium models and discusses the application of such models in the practical analysis and assessment of electricity markets.

Drawing upon the extensive involvement in the research and industrial development of the leading experts in the subject area, the book starts by explaining the current developments of electrical power systems towards smart grids and then relates the operation and control technologies to the aspects in electricity markets. It explores:

The problems of electricity market behavior and market power

Mathematical programs with equilibrium constraints (MPEC) and equilibrium problems with equilibrium constraints (EPEC)

Tools and techniques for solving the electricity market equilibrium problems

Various electricity market equilibrium models

State-of-the-art techniques for computing the electricity market equilibrium problems

The application of electricity market equilibrium models in assessing the economic benefits of transmission expansions for market environments, forward and spot markets, short-term power system security, and analysis of reactive power impact

Also featured are computational resources to allow readers to develop algorithms on their own, as well as future research directions in modeling and computational techniques in electricity market analysis. Restructured Electric Power Systems is an invaluable reference for electrical engineers and power system economists from power utilities and for professors, postgraduate students, and undergraduate students in electrical power engineering, as well as those responsible for the design, engineering, research, and development of competitive electricity markets and electricity market policy.

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