A comprehensive review of state-of-the-art approaches to power systems forecasting from the most respected names in the field, internationally

Advances in Electric Power and Energy Systems is the first book devoted exclusively to a subject of increasing urgency to power systems planning and operations. Written for practicing engineers, researchers, and post-grads concerned with power systems planning and forecasting, this book brings together contributions from many of the world’s foremost names in the field who address a range of critical issues, from forecasting power system load to power system pricing to post-storm service restoration times, river flow forecasting, and more.

In a time of ever-increasing energy demands, mounting concerns over the environmental impacts of power generation, and the emergence of new, smart-grid technologies, electricity price forecasting has assumed a prominent role within both the academic and industrial arenas. Short-run forecasting of electricity prices has become necessary for power generation unit schedule, since it is the basis of every maximization strategy. This book fills a gap in the literature on this increasingly important topic.

Following an introductory chapter offering background information necessary for a full understanding of the forecasting issues covered, this book:

• Introduces advanced methods of time series forecasting, as well as neural networks

• Provides in-depth coverage of state-of-the-art power system load forecasting and electricity price forecasting
• Addresses river flow forecasting based on autonomous neural network models

• Deals with price forecasting in a competitive market

• Includes estimation of post-storm restoration times for electric power distribution systems

• Features contributions from world-renowned experts sharing their insights and expertise in a series of self-contained chapters

Advances in Electric Power and Energy Systems is a valuable resource for practicing engineers, regulators, planners, and consultants working in or concerned with the electric power industry. It is also a must read for senior undergraduates, graduate students, and researchers involved in power system planning and operation.

About the Author

Mohamed E. El-Hawary, PhD is Professor of Electrical and Computer Engineering at Dalhousie University. He is also the editor for the IEEE Press Power Engineering Series. His contributions to electrical engineering research, education, and industry cover more than forty years. His pioneering work in the economic operation of power systems and the application of computational intelligence techniques to power system operational problems has been cited in numerous textbooks and research monographs and more than 300 research articles. He has published multiple books with Wiley, including Principles of Electric Machines with Power Electronic Applications, 2nd Edition, and Introduction to Electrical Power Systems.

Series

IEEE Press Series on Power Engineering

For additional product details, please visit https://www.wiley.com/en-us