Pragathi / Mossad / Singh

Microgrid Revolution

Transforming Energy Distribution for a Sustainable Tomorrow

Design, protect, and secure microgrids for resilient energy distribution This book covers AC, DC, and hybrid microgrid control schemes with particular focus on solar, wind, battery, and fuel cell systems. With an examination on classification, structure, and operational modes of microgrids, this book presents modeling of random variables for wind and solar microgrid planning, supported by real-world case studies and practical applications throughout. The book also includes: - Machine Learning-based protection schemes addressing key challenges in microgrid fault detection and system reliability - Cyber-physical control frameworks and authentication models for identifying and preventing attacks on smart grid infrastructure - Stochastic modeling approaches for wind and solar energy variables applied directly to microgrid planning and resource allocation - Illustrations, diagrams, and flowcharts that clarify complex microgrid concepts alongside real-world case studies from actual projects Designed for engineers, policy makers, and researchers working in electrical engineering, renewable energy, and energy systems, this reference delivers the technical depth needed to implement and manage microgrids. Graduate and undergraduate students in electrical engineering will find it a rigorous resource for understanding microgrid design, control, and security.

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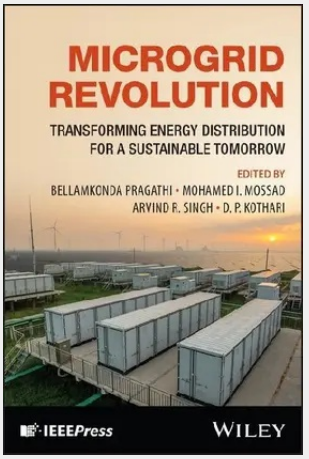

149,50 €
149,50 € (zzgl. MwSt.)

vorbestellbar, Erscheinungstermin ca. April 2027

Artikelnummer: 9781394369980
Medium: Buch
ISBN: 978-1-394-36998-0
Verlag: John Wiley & Sons Inc
Erscheinungstermin: 26.04.2027
Sprache(n): Englisch
Auflage: 1. Auflage 2027
Produktform: Gebunden
Seiten: 352

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