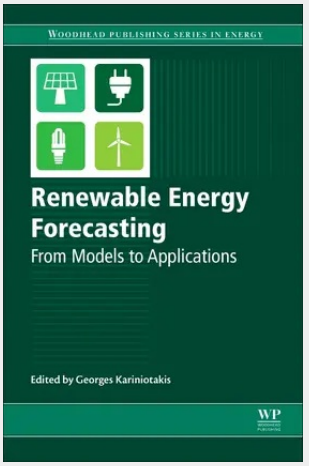
Kariniotakis

Renewable Energy Forecasting

From Models to Applications



Renewable Energy Forecasting: From Models to Applications provides an overview of the state-of-the-art of renewable energy forecasting technology and its applications. After an introduction to the principles of meteorology and renewable energy generation, groups of chapters address forecasting models, very short-term forecasting, forecasting of extremes, and longer term forecasting. The final part of the book focuses on important applications of forecasting for power system management and in energy markets. Due to shrinking fossil fuel reserves and concerns about climate change, renewable energy holds an increasing share of the energy mix. Solar, wind, wave, and hydro energy are dependent on highly variable weather conditions, so their increased penetration will lead to strong fluctuations in the power injected into the electricity grid, which needs to be managed. Reliable, high quality forecasts of renewable power generation are therefore essential for the smooth integration of large amounts of solar, wind, wave, and hydropower into the grid as well as for the profitability and effectiveness of such renewable energy projects.

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334,50 €
334,50 € (zzgl. MwSt.)

Nicht mehr lieferbar

Artikelnummer: 9780081005040
Medium: Buch
ISBN: 978-0-08-100504-0
Verlag: Elsevier Science
Erscheinungstermin: 14.06.2017
Sprache(n): Englisch
Auflage: Erscheinungsjahr 2017
Produktform: Gebunden
Gewicht: 748 g
Seiten: 386
Format (B x H): 157 x 234 mm

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