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Nota di contenuto	Part I Modelling of Energy Prices -- Estimation of the Number of Factors in a Multi-Factorial Heath-Jarrow-Morton Model in Power Markets -- Hawkes Processes in Energy Markets: Modelling, Estimation and Derivatives Pricing -- Periodic Trawl Processes: Simulation, Statistical Inference and Applications in Energy Markets -- Part II Energy Transition -- Fuelling the Energy Transition: The Effect of German Wind and PV Electricity Infeed on TTF Gas Prices -- A Mean-Field Game Model of Electricity Market Dynamics -- PPA Investments of Minimal Variability -- Part III Climate Risk -- Climate Risk in Structural Credit Models.
Sommario/riassunto	Power markets are undergoing a major transformation from gas and oil-fueled generation toward renewable electricity production from wind and solar sources. Simultaneously, there is an increasing demand for electrification, coupled with long-term climate-induced weather changes. The uncertainties confronting energy market participants require sophisticated modelling techniques to effectively understand risk, many of which are covered in this book. Comprising invited papers

by high-profile researchers, this volume examines the empirical aspects of forward and futures prices, uncovering patterns of noise factors in various European electricity markets. Additionally, it delves into the recent, influential classes of Hawkes and trawl processes, emphasizing their significance in energy markets. The impact of renewables on energy market prices is a pivotal concern for both producers and consumers. Mean-field games provide a powerful mathematical framework for this, and a dedicated chapter outlining their dynamics is included in the book. The book also explores structural financial products and their connection to climate risk as a risk management tool, underscoring the essential need for a comprehensive understanding of these products in the realm of "green finance," to which the energy industry is integral. Lastly, the book thoroughly analyzes spatial smoothing and power purchase (PPA) contracts, addressing central issues in energy system planning and financial operations. Tailored for researchers, PhD students, and industry energy analysts, this volume equips readers with insights and tools to navigate the constantly evolving energy market landscape. It serves as a sequel to the earlier Quantitative Energy Finance book, featuring all-new chapters.
