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| Nota di contenuto | Chapter 1: A Robust Controller for Multi-level Distributed Generation Based Island-ed Microgrid -- Chapter 2: Multi-source Microgrid Fre-quency Stability Control Using Learning-Based Technology -- Chapter 3: Hybrid Renewable Energy Sys-tems for Future Power Grids -- Chapter 4: Operation of Renewable Ener-gy and Energy Storage-based Hybrid Re-mote-area Power Sup-ply (RAPS) Systems: Challenges and State-of-the-arts -- Chapter 5: A Symbolic Aggregate Approx-imation-based Data Mining Tool for the Detection and Classification of Power Grid Voltage Events -- Chapter 6: Identifying Hosting Capacity of Renewable DG units in Smart Grids Con-sidering Protection Systems -- Chapter 7: Management of Distributed Generation for Smart Buildings -- Chapter 8: Smart Inverters and Controls for Grid-Connected |

Renewable Energy Sources -- Chapter 9: Transformerless Three-Phase Solar Photovoltaic Converters -- Chapter 10: Sensorless Control Technolo-gies for Stand-alone and Grid-connected Operation of Brush-lessDoubly-Fed In-duction Generators in Smart Grid -- Chapter 11: Control and Observation of Induction Motors Based on Full-Order Terminal Sliding Mode Technique.

Sommario/riassunto

To meet the increasing demand of electrical power, the use of renewable energy-based smart grid is attracting significant attention in recent years throughout the world. The high penetration of renewable power in the smart grids is growing its importance due to its non-finishing, reusable, reliable, sustainable, lower cost, and available characteristics. The renewable energy-based smart grid technology may mitigate the increasing energy demands effectively and efficiently without hampering the environment. But the uncertain nature of renewable sources largely affects the operation of the smart grid by un-stabling the voltage and frequency that may introduces power quality and reliability problems, which requires special control techniques. This book investigates the challenges in controlling renewable energy-based smart grids and proposes different control techniques to control the voltage and frequency effectively to improve the power quality and reliability of the power grids. This book is a valuable resource for readers interested in practical solutions in smart grids and renewable energy systems.