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Collana	Reliable and Sustainable Electric Power and Energy Systems Management, , 2510-2524
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Nota di contenuto	Chapter 1. Reliability Assessment of Power Grid Supporting Sustainable Transportation (Xue Wang and Rajesh Karki) -- Chapter 2. Hybrid AC/DC Micro-Grids: Solution for High Efficient Future Power Systems (Peng Wang, Jianfang Xiao, Chi Jin, Xiaoqing Han and Wenping Qin) -- Chapter 3. Low Voltage Ride Through of Wind Energy Systems (Mehrdad Tarafdar Hagh and Kashem Mohammad Muttaqi) -- Chapter 4. Reliability Evaluation of Distribution System with Network Reconfiguration and Distributed Generations (P Pavani and S N Singh) -- Chapter 5. Tracing the Unreliability and Recognizing the Weak Parts of a Power System (Kaigui Xie) -- Chapter 6. Sustainable Energy Optimization in a Smart Microgrid (Ryan Jansen and Rajesh Karki) -- Chapter 7. Renewable Energy Generation System Expansion Planning

(Jaeseok Choi) -- Chapter 8. Microhydro Based Mini Grid for Sustainable Development of Rural Communities: A Case Study of Nepal (Netra Pd. Gyawali).

Sommario/riassunto

This book deals with quantifying and analyzing the risks associated with sustainable energy technology growth in electric power systems, and developing appropriate models and methodologies to mitigate the risks and improve the overall system performance. The rapid increase in the installation of renewable energy sources in electric power systems has given rise to a wide range of problems related to planning and operation of power systems to maintain quality, stability, reliability and efficiency. Additionally, there is a growing global environmental concern regarding increasing emissions from the electric power generation required to meet rising energy needs and support sustainable and inclusive development. The phenomenon of low voltage ride through (LVRT), common to wind energy systems, is discussed, and ways to tackle the same are proposed in the first chapter. Subsequent chapters propose methods of optimizing a sustainable and smart microgrid, and supplying electricity to remote areas of a developing country with no immediate possibility of national grid extension. The economic benefit and technical challenges of forming localized minigrid are also discussed. The book proposes a method for reliability assessment of a power grid with sustainable power transportation system. The issue of weak link in power system is very important as it will provide the system operators and planners to take necessary measures to strengthen the system. An approach to determine the weak parts of the system and its unreliability is proposed. With increasing installation of HVDC power transmission and development of efficient and low cost power electronic devices, the DC microgrids are becoming a common phenomenon. Their existence together with AC Grids result in Hybrid AC/DC Microgrids, which are discussed in this book. It further presents a method for reliability evaluation of a distribution system with network reconfiguration in the presence of distributed generation. The important problems in sustainable energy growth, and their potential solutions discussed and presented in the book should be of great interest to engineers, policy makers, researchers and academics in the area of electric power engineering.