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Titolo	Energy System Resilience and Distributed Generation // edited by David Borge-Diez, Enrique Rosales-Asensio
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Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (390 pages)
Collana	Power Systems, , 1860-4676
Disciplina	621.31
Soggetti	Electric power distribution Electric power-plants Power electronics Renewable energy sources Energy Grids and Networks Power Stations Power Electronics Renewable Energy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	1. Energy resilience: definition and assessment -- 2. Adaptive Resilience Metrics for DER-Rich Electric Distribution Systems -- 3. Maintaining energy resilience through adaptation -- 4. External Resilience Assessment of Energy Critical Infrastructure -- 5. Enhancing resilience of active distribution networks to extreme weather events now and in the future -- 6. Peak load reduction and resilience benefits in critical microgrids -- 7. A Multilayer Approach for Resilience Assessment of Power Distribution Systems using Dynamic Bayesian Networks -- 8. Economic and resilience improvement for radial and meshed grids -- 9. Resilience improvement in office buildings with critical loads -- 10. Resilience improvement in preCOVID-19 medical centers -- 11. Resilience improvement in postCOVID-19 medical centers.
Sommario/riassunto	This book presents a methodology for assessing the advantages of

microgrids from both a business and energy resilience perspective. Microgrids incorporate distributed generators and electrochemical energy storage systems within end-user facilities that have critical loads. By utilizing renewable energy sources and electrochemical energy storage, the life-cycle cost of energy within microgrids connected to the electrical grid can be significantly reduced. Moreover, the book explores how the design of microgrids can enhance the resilience of power supply to customers, as measured by the duration for which the microgrid can sustain an electrical consumer during an outage. This aspect is particularly crucial for buildings with critical loads. The book contains case studies from around the world that demonstrate these lessons. The book is of interest to researchers and graduate students in power and energy as well as professionals in the power industry.
