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Titolo	Cyber-Physical Microgrids // by Yan Li
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ISBN	3-030-80724-X
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (207 pages)
Collana	Energy Series
Disciplina	621.31
Soggetti	Electric power distribution Cooperating objects (Computer systems) Electric power production Energy policy Energy Grids and Networks Cyber-Physical Systems Electrical Power Engineering Energy Policy, Economics and Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Overview of Cyber-Physical Microgrids -- Photovoltaic -- Micro-Turbine -- Power Electronics Interfaces -- Modeling of Microgrids -- Stability Analysis of Microgrids -- Cyber-Communication Network for Microgrids -- Cyber-Attacks and Defense in Microgrids -- Appendix.
Sommario/riassunto	This textbook provides students with an overview of cyber-physical microgrid networks and an in-depth introduction to photovoltaics, batteries, flywheel, supercapacitor, micro-turbines, wind generation, power-electronic interfaces, modeling and stability analysis of microgrids, and cyber-communication networks and security. The text helps upper-level undergraduate and graduate students gain a foundational understanding of microgrids and renewable energy, and offers an introduction to the frontier of theoretical research and practical applications of cyber-physical systems, paving the way to uncover and understand the operational mechanism of cyber-physical microgrids. The book includes examples and test systems throughout for problem-solving and will be an essential resource for students,

researchers, and professionals in power engineering. Explains the dynamic modeling of typical renewable energy resources; Demonstrates the theoretical analysis of microgrid stability and security; Includes extensive examples to explain complicated dynamic control and theoretical analysis.

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