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ISBN	3-030-45453-3
Edizione	[1st ed. 2020.]
Descrizione fisica	1 online resource (436 pages)
Disciplina	621.319
Soggetti	Energy systems Application software Energy storage Energy Systems Information Systems Applications (incl. Internet) Energy Storage
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Modeling, Simulation and Analysis of Energy Internet -- Cyber-Physical System Security -- Demonstration Engineering and Applications -- Renewable Energy Generation -- Large Scale Energy Storage -- Flexible AC/DC Distribution -- Energy "Routers", "Computers", and "Protocols" -- Electrical Vehicles -- Monitoring and Measurement -- Energy Internet Enabled Data Centers -- Software Defined Energy Internet -- Big Data Analysis -- Complementary Scheduling and Optimization of Multiple Energy Flows -- Coordination of Energy Sources, Networks, Storage, and Loads -- Power Quality and Power Experience -- Artificial Intelligence for Energy Internet -- Demand Side Management and Response -- Block Chains -- User Centric Energy Services -- Cost-effectiveness Analysis for Energy Internet Engineering -- Value Driven Energy Management.
Sommario/riassunto	This textbook is the first of its kind to comprehensively describe the energy internet; a vast network that efficiently supplies electricity to anyone anywhere and is an internet based wide area network for information and energy fusion. The chapters are organized into five

parts: Architecture and Design; Energy Switching and Routing; Information and Communication; Energy Management Systems; Market and Trading; while also presenting a plethora of open problems that this transformation poses for researchers from mixed academic backgrounds. The scope includes key technologies on distributed energy sources, microgrids, energy storage, solar and wind energy, power grid, smart grid, power quality, power electronics, data centers, distributed computing and networking, cloud computing and big data, and software-defined networking. The book presents the basic principles of energy internet and emphasizes the current research trends in the field of energy Internet at an advanced level. It includes instructor materials, case-studies, and worked examples throughout. This is an ideal resource for students in advanced graduate-level courses and special topics in energy, information and control systems, and is a useful tool for utility engineers who seek an intuitive understanding of the emerging applications of energy Internet. Provides an ideal resource for students in advanced graduate-level courses and special topics in energy, information and control systems Presents the basic principles of energy Internet and emphasizes the current research trends in the field of energy Internet at an advanced level Contains new systems-level knowledge of energy and information systems for sustaining the advancement of this emerging field Includes instructor materials, case-studies, and worked examples throughout.
