

1. Record Nr.	UNINA9910557296203321
Autore	Pinto Tiago
Titolo	Multi-Agent Energy Systems Simulation
Pubbl/distr/stampa	Basel, Switzerland, : MDPI - Multidisciplinary Digital Publishing Institute, 2020
Descrizione fisica	1 electronic resource (190 p.)
Soggetti	History of engineering & technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>The synergy between artificial intelligence and power and energy systems is providing promising solutions to deal with the increasing complexity of the energy sector. Multi-agent systems, in particular, are widely used to simulate complex problems in the power and energy domain as they enable modeling dynamic environments and studying the interactions between the involved players. Multi-agent systems are suitable for dealing not only with problems related to the upper levels of the system, such as the transmission grid and wholesale electricity markets, but also to address challenges associated with the management of distributed generation, renewables, large-scale integration of electric vehicles, and consumption flexibility. Agent-based approaches are also being increasingly used for control and to combine simulation and emulation by enabling modeling of the details of buildings' electrical devices, microgrids, and smart grid components. This book discusses and highlights the latest advances and trends in multi-agent energy systems simulation. The addressed application topics include the design, modeling, and simulation of electricity markets operation, the management and scheduling of energy resources, the definition of dynamic energy tariffs for consumption and electrical vehicles charging, the large-scale integration of variable renewable energy sources, and mitigation of the associated power network issues.</p>

