

1. Record Nr.	UNINA9910253988403321
Autore	Rigatos Gerasimos
Titolo	Intelligent Renewable Energy Systems : Modelling and Control / / by Gerasimos Rigatos
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-39156-9
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (XXVII, 542 p. 236 illus., 194 illus. in color.)
Collana	Green Energy and Technology, , 1865-3529
Disciplina	333.794
Soggetti	Energy systems Renewable energy resources Environmental economics Computers Energy Systems Renewable and Green Energy Environmental Economics Information Systems and Communication Service
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Electric machines and power electronics -- Control of the functioning of Doubly-fed induction generators -- Control of the functioning of synchronous generators -- Control of the functioning of multiphase electric machines -- Control of the functioning of DC to DC and AC to DC converters -- Control of the functioning of DC to AC converters -- Control of fuel cells and batteries -- Synchronization and stabilization of distributed power generation Units -- Condition monitoring and fault diagnosis for electric power generators -- Condition monitoring of the electric power transmission and distribution system -- Glossary.
Sommario/riassunto	Focused on renewable energy systems and the development of information and communication technologies (ICTs) for their integration in smart grids, this book presents recent advances and methods that help to ensure that power generation from renewable sources remains stable, that power losses are minimized, and that the reliable functioning of these power generation units is maintained. The

book highlights key topics and technologies for renewable energy systems including the intelligent control of power generators, power electronics that connect renewable power generation units to the grid, and fault diagnosis for power generators and power electronics. In particular, the following topics are addressed: • Modeling and control of power generators (PMSGs, DFIGs); • Modeling and control of power electronics (converters, inverters); • Modeling and fault diagnosis of the transmission and distribution Grid; and • Modelling and control of distributed power generation units (interconnected synchronous generators or photovoltaic units). Because of the above coverage, members of the wider engineering community will find that the nonlinear control and estimation methods presented provide essential insights into the functioning of renewable energy power systems, while the academic community will find the book a valuable textbook for undergraduate or graduate courses on renewable energy systems.
