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Titolo	Advanced Smart Grid Functionalities Based on PowerFactory / / edited by Francisco Gonzalez-Longatt, José Luis Rueda Torres
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Descrizione fisica	1 online resource (XII, 371 p. 268 illus., 225 illus. in color.)
Collana	Green Energy and Technology, , 1865-3529
Disciplina	621.31
Soggetti	Energy systems Power electronics Transportation Energy storage Electronic circuits Energy Systems Power Electronics, Electrical Machines and Networks Energy Storage Circuits and Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Part I: Fundamentals -- Special features of PowerFactory for Smart Grids -- DIgSILENT Simulation Language (DSL) -- DIgSILENT Programming Language (DPL) -- Interfacing PowerFactory with Third-party-Software -- Potentials for Co-simulation and HIL -- Part II: Applications for smart grid planning -- Co-simulation for modelling and simulation of hybrid systems -- Model identification and dynamic equivalencing i. Transmission systems ii. Active distribution networks -- EMT models of RES -- Offshore-onshore grids -- HVDC-HVAC systems -- Dynamic modelling of electric vehicles infrastructure -- Advanced electricity energy storage systems -- Part III: Applications for smart grid operation -- Real-time load measurement and management -- Diagnosis & notification of equipment condition -- Dynamic capability rating -- Fault current limiting in hybrid systems -- Smarter adaptive and enhanced protections -- Automated islanding and

	restoration -- Wide area monitoring, visualization, & control -- Customer Electricity Use Optimization -- Risk-based security assessment.
Sommario/riassunto	This book consolidates some of the most promising advanced smart grid functionalities and provides a comprehensive set of guidelines for their implementation/evaluation using DIgSILENT Power Factory. It includes specific aspects of modeling, simulation and analysis, for example wide-area monitoring, visualization and control, dynamic capability rating, real-time load measurement and management, interfaces and co-simulation for modeling and simulation of hybrid systems. It also presents key advanced features of modeling and automation of calculations using PowerFactory, such as the use of domain-specific (DSL) and DIgSILENT Programming (DPL) languages, and utilizes a variety of methodologies including theoretical explanations, practical examples and guidelines. Providing a concise compilation of significant outcomes by experienced users and developers of this program, it is a valuable resource for postgraduate students and engineers working in power-system operation and planning.