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| Nota di contenuto | Part I: Introduction -- Motivation -- State-of-the-Art and Current Practice in Power System Testing -- Overview of the ERIGrid System-Level Validation Approach -- Part II: Validation Methods, Concepts, and Tools -- Holistic System Integration and Testing Procedure -- Simulation-Based Assessment Methods -- Laboratory-Based Assessment Methods -- Laboratory Coupling Approach -- Part III: Test Cases, Case Studies, and Validation Examples -- Selected Test Cases -- Selected Case Studies and Validation Examples -- Experiences and Lessons Learned from the Holistic Validation Approach -- Part IV: Educational Aspects -- Training Needs -- Education Concepts and Material -- Part V: Outlook and Conclusions -- Outlook -- |

Conclusions.

Sommario/riassunto

This book is an open access book. This book provides an overview of the ERIGrid validation methodology for validating CPES, a holistic power system testing method. It introduces readers to corresponding simulation and laboratory-based tools, including co-simulation, real-time simulation, and hardware-in-the-loop. Selected test cases and validation examples are provided, in order to support the theory discussed. The book begins with an introduction to current power system testing methods and an overview of the ERIGrid system-level validation approach. It then moves on to discuss various validation methods, concepts and tools, including simulation and laboratory-based assessment methods. The book presents test cases and validation examples of the proposed methodologies and summarises the lessons learned from the holistic validation approach. In the final section of the book, the educational aspects of these methods, the outlook for the future, and overall conclusions are discussed. Given its scope, the book will be of interest to researchers, engineers, and laboratory personnel in the fields of power systems and smart grids, as well as undergraduate and graduate students studying related engineering topics.