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Nota di contenuto	SMART GRID Fundamentals of Design and Analysis; CONTENTS; PREFACE; 1: SMART GRID ARCHITECTURAL DESIGNS; 1.1 INTRODUCTION; 1.2 TODAY'S GRID VERSUS THE SMART GRID; 1.3 ENERGY INDEPENDENCE AND SECURITY ACT OF 2007: RATIONALE FOR THE SMART GRID; 1.4 COMPUTATIONAL INTELLIGENCE; 1.5 POWER SYSTEM ENHANCEMENT; 1.6 COMMUNICATION AND STANDARDS; 1.7 ENVIRONMENT AND ECONOMICS; 1.8 OUTLINE OF THE BOOK; 1.9 GENERAL VIEW OF THE SMART GRID MARKET DRIVERS; 1.10 STAKEHOLDER ROLES AND FUNCTION; 1.10.1 Utilities; 1.10.2 Government Laboratory Demonstration Activities 1.10.3 Power Systems Engineering Research Center (PSERC)1.10.4 Research Institutes; 1.10.5 Technology Companies, Vendors, and Manufacturers; 1.11 WORKING DEFINITION OF THE SMART GRID BASED ON PERFORMANCE MEASURES; 1.12 REPRESENTATIVE ARCHITECTURE; 1.13 FUNCTIONS OF SMART GRID COMPONENTS; 1.13.1 Smart Devices Interface Component; 1.13.2 Storage Component; 1.13.3 Transmission Subsystem Component; 1.13.4 Monitoring and Control Technology

Component; 1.13.5 Intelligent Grid Distribution Subsystem Component; 1.13.6 Demand Side Management Component; 1.14 SUMMARY; REFERENCES; SUGGESTED READINGS
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3: PERFORMANCE ANALYSIS TOOLS FOR SMART GRID DESIGN3.1 INTRODUCTION TO LOAD FLOW STUDIES; 3.2 CHALLENGES TO LOAD FLOW IN SMART GRID AND WEAKNESSES OF THE PRESENT LOAD FLOW METHODS; 3.3 LOAD FLOW STATE OF THE ART: CLASSICAL, EXTENDED FORMULATIONS, AND ALGORITHMS; 3.3.1 Gauss-Seidal Method; 3.3.2 Newton-Raphson Method; 3.3.3 Fast Decouple Method; 3.3.4 Distribution Load Flow Methods; 3.4 CONGESTION MANAGEMENT EFFECT; 3.5 LOAD FLOW FOR SMART GRID DESIGN; 3.5.1 Cases for the Development of Stochastic Dynamic OptimalPower Flow (DSOPF); 3.6 DSOPF APPLICATION TO THE SMART GRID
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4.3.3 Static Stability (Type I Instability)

Sommario/riassunto

"The book is written as primer hand book for addressing the fundamentals of smart grid. It provides the working definition the functions, the design criteria and the tools and techniques and technology needed for building smart grid"--