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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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2.1 COMMUNICATION AND MEASUREMENT; 2.2 MONITORING, PMU, SMART METERS, AND MEASUREMENTS TECHNOLOGIES; 2.2.1 Wide Area Monitoring Systems (WAMS); 2.2.2 Phasor Measurement Units (PMU); 2.2.3 Smart Meters; 2.2.4 Smart Appliances; 2.2.5 Advanced Metering Infrastructure (AMI); 2.3 GIS AND GOOGLE MAPPING TOOLS; 2.4 MULTIAGENT SYSTEMS (MAS) TECHNOLOGY; 2.4.1 Multiagent Systems for Smart Grid Implementation; 2.4.2 Multiagent Specifications; 2.4.3 Multiagent Technique; 2.5 MICROGRID AND SMART GRID COMPARISON; 2.6 SUMMARY; REFERENCES

3: PERFORMANCE ANALYSIS TOOLS FOR SMART GRID DESIGN

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3.7 STATIC SECURITY ASSESSMENT (SSA) AND CONTINGENCIES

3.8 CONTINGENCIES AND THEIR CLASSIFICATION; 3.8.1 Steady-State Contingency Analysis; 3.8.2 Performance Indices; 3.8.3 Sensitivity-Based Approaches; 3.9 CONTINGENCY STUDIES FOR THE SMART GRID; 3.10 SUMMARY; REFERENCES; SUGGESTED READINGS; 4: STABILITY ANALYSIS TOOLS FOR SMART GRID; 4.1 INTRODUCTION TO STABILITY; 4.2 STRENGTHS AND WEAKNESSES OF EXISTING VOLTAGE STABILITY ANALYSIS TOOLS; 4.3 VOLTAGE STABILITY ASSESSMENT; 4.3.1 Voltage Stability and Voltage Collapse; 4.3.2 Classification of Voltage Stability

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"--