1. Record Nr. UNINA9910677615303321

Titolo	Handbook of power quality / / edited by Angelo Baggini
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, NJ, : John Wiley & Sons, c2008
ISBN	1-281-84089-0 9786611840891 0-470-75424-9 0-470-75423-0
Descrizione fisica	1 online resource (644 p.)
Altri autori (Persone)	BagginiAngelo B
Disciplina	621.31
Soggetti	Electric power transmission - Reliability Distributed resources (Electric utilities) - Reliability
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Handbook of Power Quality; Contents; List of Contributors; Preface; 1 Frequency Variations; 1.1 Frequency Quality Indices; 1.2 Frequency Measuring; 1.3 Load-Frequency Characteristics; 1.3.1 Influence of the Frequency Variation on the Actuation Motors; 1.3.2 Capacitor Bank and Harmonic Filters; 1.3.3 Transformers and Coils in the Power Network; 1.4 Influence of Frequency on Users' Equipment; 1.4.1 Influence of Frequency Variations on Asynchronous Motors; 1.4.2 Influence of Frequency Variations on Parallel-Connected Condensers and Coils 1.4.3 Influence of Frequency Variations on Series-Connected Condensers and Coils1.5 Governing of Turbine Speed; 1.6 Frequency Control in Power Systems; 1.6.1 Composite Load; 1.6.2 The Generation Characteristic; 1.6.3 The System Properties and Control Basics; 1.6.4 Frequency Control in an Islanding System and in Interconnected Systems; 1.6.5 Frequency Control: Primary, Secondary and Tertiary; 1.6.6 Technical and Organizational Aspects of Load-Frequency Control; Bibliography; 2 Continuity of Supply; 2.1 Distribution Reliability; 2.1.1 Customer-Based Indices; 2.1.2 Load-Based Indices 2.1.3 Variation in the Utility Indices2.2 Quality of Supply; 2.2.1 Customer Service; 2.2.2 Continuity of Supply; 2.2.3 Voltage Quality; 2.3 Factors Affecting Reliability Performance; 2.3.1 Reliability Indices

Reporting; 2.3.2 Differences Based on Type of Supply; 2.4 Improving Reliability; 2.4.1 Utility-Side Improvement Options; 2.4.2 Custom Power Devices; 2.5 Costs, Markets and Value for Reliability; 2.5.1 Size of the End-User Load and Duration Affect Cost; 2.5.2 Market for Reliability; 2.5.3 Value of Reliability: a Macro View; 2.5.4 Impact of Reliability Events on End-User Productivity
2.5.5 Mapping Reliability to End-User Facility Operating HoursBibliography; 3 Voltage Control in Distribution Systems; 3.1 Description of the Phenomena; 3.2 Disturbance Sources; 3.3 Disturbance Effects; 3.3.1 Load Models; 3.3.2 Voltage Drop; 3.3.3 Voltage Stability; 3.4 Methods of Effect Elimination; 3.4.1 Generator Excitation Control; 3.4.2 Transformer Ratio Control; 3.4.3 Voltage Control by Means of Reactive Power Flow Change; 3.4.4 Voltage Control by Means of Network Impedance Change; 3.4.5 Node Voltage Optimization; 3.5 Standards
3.5.1 Voltage Standards in Grid Normal Operating Conditions3.5.2 Voltage Standards in Grid Disturbed Operating Conditions; 3.5.3 Voltage Standards in Middle- and Low-Voltage Distribution Networks; Bibliography; 4 Voltage Dips and Short Supply Interruptions; 4.1 Description of the Phenomena; 4.2 Parameters; 4.2.1 Voltage Dip Duration; 4.2.2 Magnitude of a Voltage Dip; 4.3 Sources; 4.3.1 Sources of Voltage Dips; 4.3.2 Sources of Short Supply Interruptions; 4.4 Effects; 4.4.1 IT Equipment and Control Systems; 4.4.2 Contactors and Relays; 4.4.3 Induction Motors; 4.4.4 Synchronous Motors
4.4.5 Variable Speed Drives

Sommario/riassunto

Due to the complexity of power systems combined with other factors such as increasing susceptibility of equipment, power quality (PQ) is apt to waver. With electricity in growing demand, low PQ is on the rise and becoming notoriously difficult to remedy. It is an issue that confronts professionals on a daily basis, but few have the required knowledge to diagnose and solve these problems. Handbook of Power Quality examines of the full panorama of PQ disturbances, with background theory and guidelines on measurement procedures and problem solving. It uses the perspectives of both power