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Nota di contenuto	Preface -- Chapter 1 - Past, present and future of electric power systems (short review) -- Chapter 2 - Characteristics of the main elements of electric power systems -- Chapter 3 - Effects on equipment causing insulation aging and failure -- Chapter 4 - Insulating materials and media used in high-voltage elements of electric power systems -- Chapter 5 - Defects in high voltage equipment. Types and content of tests -- Chapter 6 - Non-electrical diagnostic methods -- Chapter 7 - Traditional electrical diagnostic methods -- Chapter 8 - Diagnostics of high-voltage equipment by defectography methods -- Chapter 9 - Dielectric spectroscopy technology -- Chapter 10 - Diagnostics of high voltage equipment -- Chapter 11 - Diagnostics of high-voltage cable lines -- Chapter 12 - Diagnostics of Insulating structures of overhead power lines and outdoor substations -- Conclusion.
Sommario/riassunto	This textbook covers in detail the problem of improving the reliability and service life of high-voltage equipment in electric power systems, mainly through testing, monitoring, and diagnostics, which support the timely repair or replacement of equipment. The main focus is on high-voltage power and instrument transformers, switching devices,

powerful rotating electric machines, capacitors, bushings, and power cables. The design, purpose, and principle of operation for each respective type of equipment, as well as adverse factors that can lead to defects (primarily in insulation) – and, as a result, to accelerated aging (wear) and failure – are considered. In turn, the scientific and technological foundations and practical application of testing, monitoring, and diagnostics to determine the technical condition of equipment are described. Considerable attention is paid to new and promising methods for testing under voltage (without interrupting operation) – such as pulsed flaw detection and dielectric spectroscopy. In addition, the authors propose a number of helpful physical concepts and technical solutions. The book stands out in terms of the breadth and depth of the consideration of the problem, which reflects recent trends and concepts for the development of the electric power industry, and its convincing demonstration of the capabilities of traditional and advanced methods in relation to the main equipment used in electric power systems. The textbook is intended for undergraduate and graduate students in the field of high-voltage technologies for electric power systems. It also benefits engineering personnel working with electric power systems and in the electrical industry.