1. Record Nr. UNINA9910797491603321 Autore Jovcic Dragan Titolo High voltage direct current transmission: converters, systems and DC grids / / Dragan Jovcic and Khaled Ahmed, School of Engineering, University of Aberdeen, Scotland, UK Hoboken:,: John Wiley & Sons Limited,, 2015 Pubbl/distr/stampa **ISBN** 1-118-84668-0 1-118-84670-2 1-118-84667-2 Descrizione fisica 1 online resource (438 p.) Disciplina 621.319/12 Electric power distribution - Direct current Soggetti Electric power distribution - High tension Electric current converters 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 Title Page; Copyright Page; Contents; Preface; Part I HVDC with Current Source Converters: Chapter 1 Introduction to Line-Commutated HVDC: 1.1 HVDC Applications; 1.2 Line-Commutated HVDC Components; 1.3 DC Cables and Overhead Lines; 1.4 LCC HVDC Topologies; 1.5 Losses in LCC HVDC Systems: 1.6 Conversion of AC Lines to DC: 1.7 Ultra-High Voltage HVDC; Chapter 2 Thyristors; 2.1 Operating Characteristics; 2.2 Switching Characteristic; 2.3 Losses in HVDC Thyristors; 2.4 Valve Structure and Thyristor Snubbers; 2.5 Thyristor Rating Selection and Overload Capability Chapter 3 Six-Pulse Diode and Thyristor Converter 3.1 Three-Phase Uncontrolled Bridge: 3.2 Three-Phase Thyristor Rectifier: 3.3 Analysis of Commutation Overlap in a Thyristor Converter; 3.4 Active and Reactive Power in a Three-Phase Thyristor Converter; 3.5 Inverter Inverter Operation; Chapter 4 HVDC Rectifier Station Modelling, Control and Synchronization with AC Systems; 4.1 HVDC Rectifier Controller; 4.2 Phase-Locked Loop(PLL); Chapter 5 HVDC Inverter Station

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This comprehensive reference guides the reader through all HVDC technologies, including LCC (Line Commutated Converter), 2-level VSC and VSC HVDC based on modular multilevel converters (MMC) for an in-depth understanding of converters, system level design, operating principles and modeling. Written in a tutorial style, the book also describes the key principles of design, control, protection and operation of DC transmission grids, which will be substantially different from the practice with AC transmission grids. The first dedicated reference to the latest HVDC technologies and DC grid developm