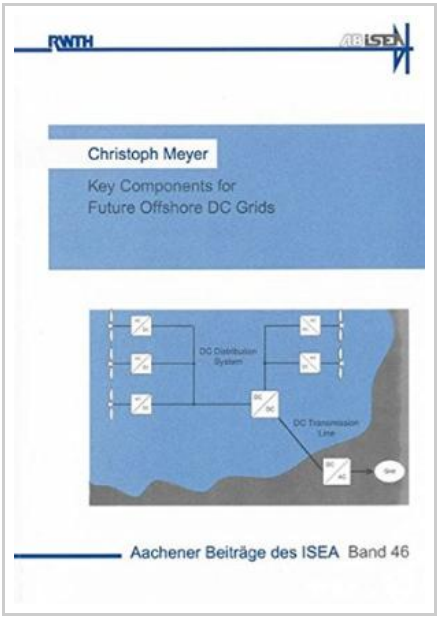

Key Components for Future Offshore DC Grids

By Christoph Meyer

Shaker Verlag Sep 2007, 2007. Taschenbuch. Book Condition: Neu. 21x14.8x cm. Neuware - The usage of offshore wind farms for the generation of electrical power is an ongoing discussion for several years. A major challenge today is to reduce the cost for the electrification of these large scale wind farms. A possible solution is to use a DC collector grid instead of conventional AC systems. In this thesis a concept for a highpower medium-voltage DC distribution system has been developed and evaluated. The main focus of this work is on the needed components, such as electronic transformers and circuit breakers, as well as system related topics, like control and stability. The work can be separated into four parts. First, concepts for high-power DC circuit breakers are developed and compared. Afterwards the needed DC/DC converter (electronic transformer) will be discussed. Besides the presentation of the existing topologies, adapted solutions are presented and measurement results of high-power devices are discussed. The third part of this work deals with the design of the needed components depending on the system and the development of a control structure together with a stability analysis. The final part of this work is a detailed comparison of the...

Reviews

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