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VSC TECHNOLOGY FOR HVDC AND FACTS

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Abstract

A high-voltage direct current (HVDC) electric power transmission system uses direct current for the bulk transmission of electrical power, in contrast with the more common alternating systems. For long-distance transmission, HVDC systems may be less expensive and suffer lower electrical losses. For under water cables, HVDC avoids the heavy currents required by the cable capacitance. For shorter distances, the higher cost of DC conversion equipment compared to an AC system may still be warranted, due to other benefits of direct current links. HVDC allows power transmission between unsynchronized AC distribution systems, and can increase system stability by preventing cascading failures from propagating from one part of a wider power transmission grid to another. The developed HVDC VSC technology can be utilized for a much more elaborate and fast control of the valves. A number of HVDC VSC transmission installations, have now been in operation for quite a few years. The High Voltage Direct Current Transmission systems of electricity, which use the Voltage Source Technology (HVDC-VSC), are nowadays in continuous development. Thanks to their characteristics of flexibility of use and management, they easily find field for the integration with the traditional electric grid. This paper covers the study of the operation experiences from this relatively new technology.

Keywords : FACTS, HVDC,IGBT, MMC,Voltage source converter.