

Live-grid Installation and Field Testing of the First Italian Superconducting Fault Current Limiter

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Abstract - Since 2009 Ricerca sul Sistema Energetico S.p.A. has been involved in the development of a resistive-type Superconducting Fault Current Limiter (SFCL) for MV applications to be installed in the A2A Reti Elettriche S.p.A. distribution grid in the Milano area. The project started with simulations, design and testing activities for a single-phase device; this first step paved the way for developing, testing and live-grid installation at the hosting utility site of the final three-phase SFCL prototype. The result of this research activity is a resistive-type 9 kV/3.4 MVA SFCL device, based on first generation (1G) BSCCO tapes, nowadays permanently installed as a single-feeder fault protection. This device is the first SFCL successfully installed in Italy. In this paper we report on installation of the three-phase device and field-testing activity. Additional information about the future evolution of the Italian R&D project and the use of a SFCL second unit (9 kV/15.6 MVA) as transformer protection in the same A2A substation in the Milano area, is also anticipated.

Keywords - BSCCO tape, Fault Current Limiter, High Temperature Superconductors, Short-Circuit Current.

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