Transient Recovery Voltages at the Main 132kV Line Bay GIS Circuit Breaker in a Windfarm

This paper presents the results of investigations of the Transient Recovery Voltage (TRV) across the terminals of the main 132kV Line Bay GIS circuit breaker (GIS CB) for Walney 2, second phase of the Walney Offshore Wind Farm. Several simulations were performed where the influence of different parameters in the network was evaluated during a fault in the onshore substation. The rate of rise of recovery voltage (RRRV) and the maximum crest voltage (Uc) of the TRV across the GIS CB were compared against the standard values based on the type test results from the GIS. The investigations were performed by means of time domain simulations using the EMT software PSCAD/HVDC. Based on the results, it was concluded that the highest RRRV appears on a system without additional stray capacitances, and the highest Uc appears when the fault is a single phase to ground.

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