

ANALYSIS OF CIRCUIT BREAKER POLE RECLOSING OF 765 KV TRANSMISSION LINE

NAVEEN GAUR¹, RAM NIWASH MAHIA² & OM PRAKASH MAHELA³

¹Principal, Aryan Polytechnic College, Ajmer, India

²Research Scholar, Indian Institute of Technology, Jodhpur, India

³Research Scholar, IIT Jodhpur India, and Assistant Engineer, RRVPNL, Jodhpur, India

ABSTRACT

The insulation level of extra high voltage (EHV) and ultra high voltage (UHV) ac systems is largely determined by the magnitude of switching over voltages. The reliable operation of the electrical system is determined by the amplitude, duration and frequency of the transient voltages. This paper presents the study of transient voltages and currents introduced in the 765 kV systems due to the circuit breaker pole reclosing. The effect of single-pole reclosing, double-pole reclosing as well as reclosing of poles of all the three-phases is presented in detail. The variation of current during arcing period and arcing resistances is also investigated. The effect of circuit breaker pole reclosing on the flow of active and reactive power at different buses in the system is also investigated. A test system having generation, loads, transmission lines and connected to the utility network is modeled in MATLAB/Simulink environment.

KEYWORDS: Arcing Period, Arcing Current, Arcing Resistance, Circuit Breaker Pole Reclosing, 765 Kv Transmission Line, Utility Grid