Implementation of the modified leader progression model in backflashover analysis

ABSTRACT

Insulation coordination models are an essential part of power system studies and are used to determine the expected overhead line backflashover rate. One study carried out is that where different positions of lightning attachment are used to reflect the random nature of lightning attachment and to calculate a realistic backflashover probability. An integral part of this study is the model of insulator coordination gap flashover. This model can range from a simple voltage controlled switch to an implementation of the leader progression model. This paper details the use of experimental data to produce a modified leader progression model in which certain model parameters are randomly varied. The development of this model using laboratory data is detailed, as is the effect that using this model has on the results of backflashover studies. The results are compared to a number of other standard insulator flashover models.