

**ASSESSING THE RELIABILITY OF OVERHEAD LINES LIGHTNING PROTECTION
SCHEMES OF TRANSMISSION LINES**

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Mathematical modeling is the primary method for studying the reliability of lightning protection of transmission lines. Mathematical models are used mainly to quantify storm sustainability of EPS. In this case, the following parameters are defined: average annual number of short circuits in power switchgear and substations caused by direct lightning β ; the average number of dangerous overvoltages that occur at substations throughout the year as a result of crowding waves from transmission lines β_1 ; annual average number of storm outages TL n_p . The above mentioned figures demonstrate the intensity of lightning failures of certain types.

The model is generalized as the reliability of lightning protection of TL at direct lightning strikes and the incoming waves is calculated using only algorithms defined by the expressions (1) and (7). All random variables that define lightning proofness of the object are taken into account, and developed methods of calculation provide adequacy and match for natural processes.

Input data for calculation of reliability include geometrical dimensions of the elements of the object that is studied, characteristics of protective devices, operating and experimental characteristics of isolation and crown. In order to maximize the accuracy of the model and input data, it is necessary to exclude the variation of random variables that have the greatest impact on the accuracy of the result. This fact is also substantiated by claims of reducing the length of the digital design. This is one of the important features of the proposed model. The accuracy of the model of reliability of lightning protection can not be justified formally. The main criterion to be considered is correspondence the results of calculations and operating experience. This correspondence was observed in almost all instances of the created model for which data on operating experience were available.