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RELIABILITY EVALUATION OF ELECTRIC SUBSTATIONS CONSIDERING UNCERTAINTY OF THE INPUT DATA

ABSTRACT

This paper presents a method for evaluation of reliability of electric substation considering uncertainty and imprecision of the input data. For this purpose, probability of failure of the components is modeled by triangular fuzzy numbers. The method is based on advanced Fuzzy logic techniques and considers practical expert’s experience and knowledge. According to the Zadeh’s principle of extension, the basic expressions for reliability calculation of system with components in series and parallel connection are derived. Practical application of the method shows that the usage of triangular fuzzy numbers gives satisfactory results from engineering point of view and provide high level of precision and model simplicity.

Keywords: Reliability, Electric substation, Fuzzy logic, Uncertain data, Unsupplied energy.