A COMPARISON OF MARKOV AND INTEGRAL METHOD FOR NUCLEAR POWER STATION BLACKOUT FREQUENCY DURATION CORRELATION

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Abstract: Markov model has been usually applied to the evaluation of system reliability, unavailability at given time points. In this paper it is applied to the problem of estimating nuclear power station blackout frequency as a function of blackout duration. The method has been compared with integral method for speed and accuracy with an example problem of diesel generator configuration. The Markov method is shown to be computationally efficient. For numerical implementations, results can be obtained in $O(N)$ steps compared to $O(N^2)$ for integral method. The widely adopted Fault tree method is also compared.

Key Words: Markov model, station blackout frequency.