

عنوان مقاله:

Computational Framework for Reliability Assessment of Renewable Energy Sources Considering Equipment Failures

محل انتشار:

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خلاصه مقاله:

In this paper, a Markovian model based strategy is proposed to accurately evaluate the reliability of a hybrid system consisting of photovoltaic (PV) systems, fuel cells (FCs) and battery system (BS). Considering that PV systems are not able to produce energy during the night, FC and BS are used to supply the demand at the time of generation shortage. The loss of load probability (LOLP) is used as a main index to calculate reliability of the hybrid system. This system has been studied in two scenarios. At first LOLP index has been calculated without considering the failure rates and repair rates of components. Afterwards, the stochastic behavior of the system is simulated by Markovian models to calculate value of LOLP considering real conditions. Results show that LOLP becomes larger in the second scenario. Therefore, the presented method expresses a realistic definition of the system's reliability that can reach the precise prediction of the lifetime energy product

کلمات کلیدی:

photovoltaic; full cell; battery system; Markovian model; reliability

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