Availability Analysis of a Power Plant by Computer Simulation

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Abstract : Reliability and availability of power stations are extremely important in order to achieve a required level of power generation. In particular, in the hot desert climate of Kuwait, reliable power generation is extremely important because of cooling requirements at temperatures exceeding 50-centigrade degrees. In this paper, a particular power plant, named Sabiya Power Plant, which has 8 steam turbines and 13 gas turbine stations, has been studied in detail; extensive data are collected; and availability of station units are determined. Furthermore, a simulation model is developed and used to analyze the effects of different maintenance policies on availability of these stations. The results show that significant improvements can be achieved in power plant availabilities if appropriate maintenance policies are implemented.

Keywords : power plants, steam turbines, gas turbines, maintenance, availability, simulation

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