

Reliability, Availability and Capacity Analysis of Power Plants in Kuwait

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Abstract : One of the most important factors affecting power plant performance is the reliability of the turbine units operated under different conditions. Reliability directly affects plant availability and performance. Therefore, it is very important to be able to analyze turbine units, as well as power plant system reliability and availability under various operational conditions. In this paper, data related to power station failures are collected and analyzed in detail for all power stations in the state of Kuwait. Failures are characterized and categorized. Reliabilities of various power plants are analyzed and availabilities are quantified. Based on calculated availabilities of all installed power plants, actual power output is estimated. Furthermore, based on the past 15 years of data, power consumption trend is determined and the demand for power in the future is forecasted. Estimated power output is compared to the forecasted demand in order to determine the need for future capacity expansion.

Keywords : power plants, reliability, availability, capacity, preventive maintenance, forecasting

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