Reliability Aspects for Electrical Distribution System Management

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Abstract

Reliability aspects in the electrical system management are treated through many phases, such as: reliability modeling, data collection and its processing, reliability measures and requirements, reliability emprovement, cost-benefit analysis and préparation of recommandations.
A major part of service interruptions experienced by an individual customer has its origin in the distribution system. Failure data are inputs to system reliability studies and much of validity of the results depend on how good this input information is good. Failures occur randomly and it is impossible to obtain component failure data by accelerated life testing. Most utilities maintain a data bank in which all the relevant information derived from field experience in the last ten years or so.¨In this work, reliability measures are computed and forecasts are obtained by BOX and JENKINS modeling of the informations extracted from the experience feed-back to show the behavior of failure rate of the components. Reliability indices results are compared with the objective values fixed a priori. From data bases point of view, on-line operating techniques are introduced to ensure data collection and its processing. Effects of incertainties are considered and concern the annual demand variation. the results obtained will help to formulate recommandations to manage easily and efficiently the system.

Keys Words: Data collection, Experience feed-back, BOX and JENKINS Models, Reliability, cost-benefit analysis, Electrical distribution system.
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