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EVALUATION OF AUTOMATED RADIAL DISTRIBUTION SYSTEM RELIABILITY

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Abstract

Power reliability and quality are gaining their greater grounds than ever in the power and industrial market of the times. It has become an essential means for the successful dispatch of quality product, operation, services of any industry. The reliability of power distribution network can be greatly enhanced by the automation of its feeder system and other associated parts. Remotely controlled and automated restoration services can avoid the necessity of executing manual switching schedules and are bound to bring about remarkable levels of system reliability and interruption costs.

In this paper the reliability indices of distribution system and their importance are discussed. The impact of alternate supply, automation and control on reliability of a radial distribution system are dealt with in due detail. The models and techniques to evaluate the reliability indices are applied to a typical radial distribution network. The reliability analyses show that distribution automation is an effective means to reduce the outage durations. The system reliability is increased considerably by automatic service restoration. The results with perfect automation and alternate supply yields better reliability indices.

Keywords: Reliability, Reliability evaluation, automated radial distribution system, reliability indices, distribution system reliability, automated restoration, customer outage duration.

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