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ASSESSMENT OF RELIABILITY INDICES IN ELECTRIC POWER DISTRIBUTION SYSTEMS

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Abstract

Assessment of Customer Power supply reliability is an important part of distribution system operation and planning. Analysis of outage data from a practical distribution system is to be performed to assess the reliability indices. Reliability evaluation of distribution system assesses the adequacy of the load points in regard to providing a suitable supply to customers. Predictive assessment of distribution reliability indices can be used to identify areas that have poor reliability so that appropriate changes in the system design can be implemented. The liberalization of the electricity markets has increased the need for performance assessment. The ability to produce qualitative performance indicators for an existing or planned power system is essential in order to improve overall efficiency. The specific customer characteristics at a load point in a distribution system can have significant effect on the estimated customer outage costs at that load point and for the entire feeder.

This paper presents assessment of reliability indices in a practical radial distribution system of particular feeder taken from the APCPDCL/APTRANSCO using generalized analytical approach, which will truly reflect the operational behavior of such systems and their effect on the consumers. The assessed results from a practical distribution system can be used in feeder design to create an optimal configuration based on the reliability indices.

Keywords: Distribution reliability indices, Radial distribution system, Reliability assessment.