Review of fault location methods for distribution power system

ABSTRACT

For the past fifty y ears, electric power systems have rapidly grown. This has resulted in a large increase of the number of lines in op eratio n an d their total length. These lines experience faults which are caused by storms, lightning, snow, freezing rain, ins ulation breakdown and short circuits caused by birds and other external objects. In most cases, electrical faults manifest in mechanical damage, which must be repaired before returning the line to service. The restoration can be expedited if the location of the fault is either known or can be estimated with reasonable accuracy. Speedy an d precise fault location plays an important role in accelerating system restoration, reducing outage time and significantly improving system reliability. This paper provides a comprehensive review of the conceptual aspects as well as recent algorithmic developments for fault location on distribution system. Several fundamentally different approaches are discussed in the paper together with the factors affecting the assumptions of the underlying concepts and the various criteria used in the different approaches are reviewed.

Keyword: Fault location method; Distribution power system; System restoration