Load Flow Analysis for Radial Distribution Networks Using Backward/Forward Sweep Method.(2017)

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Abstract
Power flow analysis is important for the performance's evaluation of operational conditions of electric power system and the planning of its future upgrading. The radial distribution networks RDN are characterized by load unbalances and high R/X ratios making the Newton Raphson and Fast Decoupled methods to fail in the analysis. In this work, the backward and forward sweep method was proposed as an efficient and easy tool for Radial Distribution Network analysis. The sweep path is based on Kirchhoff's voltage and current laws. The method was tested on the IEEE 33 bus radial test systems with different load scenarios under MATLAB and the results comparison has shown better voltage profile and accurate line power losses.
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