

ABSTRACT:

The paper presents a new approach for performing the fault analysis of multiphase distribution networks based on the symmetrical components. The multiphase distribution system is represented by an equivalent three-phase system; hence, the single-phase and two-phase line segments are represented in terms of their sequence values. The proposed technique allows the state of the art short-circuit analysis solvers to analyze unbalanced distribution networks. The fault currents calculated using the proposed technique is compared with the phase components short-circuit analysis solver. The obtained results for the IEEE radial test feeders show that the proposed technique is accurate. Based on the proposed method, the existing commercial grade short-circuit analysis solvers based on sequence networks can be utilized for performing unbalanced distribution systems.