METHODOLOGY FOR LOCATING SWITCHING AND PROTECTIVE EQUIPMENT IN DISTRIBUTION SYSTEMS

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ABSTRACT

This work presents a methodology for studying the benefits and associated costs of installing switching/protective devices in primary distribution feeders. Benefits are computed as a series of reductions in the Energy Not Supplied (ENS) resulting from the installation of new equipment in the network. The proposed approach considers system load growth and also the network evolution within a mid-term planning horizon (up to 5 years). During this period, maximum capacity constraints for substation transformers and sections of primary feeders are enforced. Critical areas regarding system reliability are identified and a set of alternatives for replacing existing switching/protective devices or installing new ones is generated. Using an integer programming-based technique, the alternative that yields the best overall benefit-cost value is identified. Constraints on the available budget and available equipment are also taken into account in the optimisation process. The application of the proposed approach is illustrated through an example.

INTERNATIONAL CONFERENCE ON ELECTRCITY DISTRIBUTION. Buenos Aires, 1996. CIRED Argentina'96. Buenos Aires, CIER/ADEERA, 1996. p. session 5.26/157-62.