Solution of distributed generation allocation problem using a novel method

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Abstract

In this paper, A novel optimization technique called whale optimization algorithm (WOA) is modified, used and implemented to find the best possible solution to the problem of optimal locating and sizing of Distributed Generation (DG) resources such as photovoltaic cells, fuel cells and kVAR compensators in radial distribution feeders. The modified technique is used for the first time to solve this kind of optimization problem which includes optimal sizing and location of DG units in radial distribution feeder.
The proposed method is applied to two different test distribution feeders (15 bus and 33 bus test systems) using different DG types and the acquired results are analyzed and compared to other modern optimization methods to confirm that they give the best results, lowest system real power losses and highest voltage profile improvement among the other modern methods implemented on the same test systems.

Indonesian Journal of Electrical Engineering and Computer Science 2019, August