**(Ondon et al., 2016)** describes an analytical method for the optimal sizing and placement of DG in the Nigerian power network for system active power loss minimization. The proposed method was able to reduce 6.2% of active power loss but is computationally demanding and this may lead to error in the best DG location and sizing for system power loss minimization.

(E.S. Ali et al 2017) proposed for optimal location and sizing of DG based renewable sources for various distribution systems using ALOA. The proposed ALOA is used to deduce the locations and sizing of DG from the elected buses. The study did not address reactive power loss minimization. The scope was limited to a balance and small-scale distribution power system.

(S. Kumar et al 2019) presents a new improved algorithm based on multiobjective opposition based chaotic differential evolution (MOCDE) technique for the placement of DGs of optimal sizes at optimal locations. The author considered the placement and sizing of DG with active power loss minimization however did not address the reactive power loss minimization.

( Kansal et al 2011) proposes the application of Particle Swarm Optimization (PSO) technique to find the optimal size and optimum location for the placement of DG in the radial distribution networks for active power compensation by reduction in real power losses and enhancement in voltage profile. He proves that the analytical method violates voltage limit. However, in practice the best location or size may not be possible due to constraints such size may not be available in the market.

(C. Wang et al 2004…) presents analytical methods to determine the optimal location to place a DG in radial as well as networked systems to minimize the power loss of the system but did not consider the optimal DG size and reactive power loss minimization.

(*A.A. Hassan* et al. 2017) proposes a methodology for optimal allocation and sizing of renewable DG units to minimize total power losses over radial distribution systems. using the augmented Lagrangian genetic algorithm (ALGA) by combining the objective function and the nonlinear constraints. The computation time of the algorithm is found to be dependent on the size and configuration of the tested system and the number of DG units. However, the study did not address reactive power supplied from PV allocation through inverter control.

( E. E. Elattar et al …2020) proposed a modified moth flame optimization (MMFO) used to find the optimal location and sizing of DG units based on renewable energy sources in the distribution system. The proposed method was compared with the conventional MFO, by improving the balance between the exploration and exploitation and speed up the convergence of the algorithm but did not include reactive power loss minimization which plays a critical role in voltage stability control. It did not also include unbalance three phase load.

( H. Musa et al 2013) proposed algorithm called Ranked Evolutionary Particle swarm optimization (REPSO) combines PSO with Evolutionary programming Optimization methods to simultaneously places and size DG units in radial distribution network. It was observed that the REPSO algorithm presented better results in terms of time taken to reach the optimal DG size than the PSO. However, the study did not address the problem harmonic resonance and reactive power loss minimization.