Hybrid Ant Colony Optimization and Bees Algorithm for Planning of Public Fast Charging Stations on a Residential Power Distribution System

Sharma, Mahesh Kumar, author

Abstrak

Nowadays, the plug-in electric vehicle industry vastly grows into transportation sector worldwide. hence, the public fast charging stations (FCSs) must be prepared to serve this emerging plug-in electric vehicle charging demand. Moreover, planning for FCSs within the urb-an area is quite important. a hybrid swarm optimization technique blending beneficial charac-teristics of Ant Colony Optimization (ACO) with Bees Algorithm (BA), named HACOBA, is developed in this paper to find the optimal locations of FCSs that are placed on the residential power distribution grid such that it maximizes the fast charging serviceability su-bject to power distribution system limit and public road traffic constraints. In order to verify the effectiveness of the proposed method, it has been investigated on the IEEE-69-bus test system for two sizes of the fast charger of FCSs. from the obtained simulation results, it is found that the proposed algorithm shows its competitiveness with traditional techniques.