

Planning of electric vehicle charging station in distribution network considering service radius

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Abstract Demand and technical feasibility are two important factors in the principles of designing an electric vehicle charging station. Demand is generally defined by the traffic flow of current electric cars in the region and the shortest distance of the candidate station the possible location of cars. as, the technical issue includes the costs such as investment, repair and maintenance, and network power distribution losses. Therefore, in this thesis, finding the best location for an electric vehicle charging station and minimizing the above-mentioned costs is considered knowing the limitations of electricity distribution such as the capacity of the power grid and posts. Moreover, what makes this research innovative is introducing a factor calculated by the ratio of the coefficient of car traffic in a station, which is based on the covered area of each station over the whole network area, to the coefficient of station capacity allocation, which is based on the capacity of the station over the total capacity of all stations. This factor indicates overloading or the station's activity while it's underloaded. Incorporating this factor into the optimization process reflects the consumption behavior of electric cars considering the shortest distance of the car the station. In this thesis, the recommended procedure is conducted by simulating an IEEE 33-bus distribution system in an urban region with an optional area. Maryam khazaei

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