Distributed Management Platform based Charging Stations for Plug-In Electric Vehicles in Distribution Networks

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Abstract

The purpose of this research is to design and present a new power management platform for Plug-In Electric Vehicles (PEVs) to manage the charging demand from PEVs without violations to the power and voltage limit of the distribution network (DN). PEVs can not only reduce the greenhouse effect, but also run at a low cost, compared to traditional Internal Combustion Engine (ICE) vehicles. With increasing number of PEVs add to the distribution network DN, they should be controlled, which will also be beneficial when managing the DN. Otherwise, they will damage the DN. In this platform, there are two stations. One is master station, another is slave station. They may have many slave stations in this platform. They are simulated by 3 Raspberry Pi 3. The platform creates connections between master station and slave stations. The algorithm is programing by Python.