This paper defines a method for generating individual electric vehicle charging patterns and it intends to quantify the realistic loading impact on distribution grid feeders. The inputs are based on historical driving characteristics of private conventional vehicles from Denmark and home plug-in behavior of EVs from Japan. The first input is used to define properties such as the daily driven distance and the expected departure and arrival time, which determines the possible home charging window. The second input is used to quantify the probability of performing a domestic charge every day. Because most of the EVs does not need to charge every day, even when considering a 100% EV penetration scenario, the amount of simultaneous charging with domestic single-phase charging power (3.7 kW) determines a coincidence factor lower than 45%. When considering three-phase charging (11 kW), the combined power of the EV population increases only to 50% because of shorter charging sessions. Although the power increase, due to 11 kW charging, is likely to trigger grid components overloading, it is highlighted how uncontrolled distribution of single-phase charging could be responsible for local voltage unbalances.