Comparative Study on the Performance of Electrical Vehicles with DC Drive and Series Motor, DC Drive and Separately Excited DC Motor, and AC Drive and PMSM Motor. Part 1: Driving and Braking Operations(Book Chapter)

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Abstract:
Conventional vehicles emit carbon monoxide and nitro oxide during the engine combustion. These two gases are two major contributors toward pollution to the environment. Electric vehicles (EVs) and hybrid electric vehicles (HEVs) offer an alternative solution to the above mentioned scenarios. However the prices of AC drive EVs and HEVs vehicle are unaffordable to people in some developed countries and of course to people in developing and third world countries. DC drives which consists of DC motor and DC converter or chopper offer good controllability and cheaper in price. Nevertheless, AC drives claim AC drive claims for less maintenance and good motor performance. The research aim is to compare the performance of AC drives EVs powered by PMSM AC motors, DC Drive EVs with series motors and DC drive EVs with separately excited DC motors.

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