

# **Can Electricity Powered Vehicles Serve Traveler Needs?**

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## **Abstract**

Electric vehicles (EV), Hybrid Electric Vehicles (HEV) or Plug-in Hybrid Electric Vehicles (PHEV) are believed to be a promising substitute for current gas-propelled vehicles. Previous research studied the attributes of different types of EVs and confirmed their advantages. The feasibility of EVs has also been explored using simulation, retrospective survey data, or a limited size of field travel data. In this study, naturalistic driving data collected from more than 100 drivers during one year are used to explore naturalistic driver travel patterns. This dataset is an existing dataset, which was collected by VTTI DAS for the 100-Car Study. Typical travel distance and time and qualified dwell times (i.e., the typical required EV battery recharging time between travels as based on most literature findings) are investigated in this study. The viability of electric cars is discussed from a pragmatic perspective. The results of this research show that 90 percent of single trips are less than 25 miles; approximately 70 percent of the average annual daily travel is less than 60 miles. On average there are 3.62 trips made between four-hour dwell times as aggregated to 60 minutes and 50 miles of travel. Therefore, majority of trips are within the travel range provided by most of the currently available EVs. A well-organized schedule of recharging will be capable of covering even more daily travels.

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