

عنوان مقاله:

Evaluation of Intelligent Distribution Network Response to Plug-in Hybrid Electric Vehicles

محل انتشار:

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خلاصه مقاله:

Plug-in Hybrid Electric Vehicles (PHEV) have the potential to limit emissions and reduce the cost of transportation. Although wide scale adoption of plug-in vehicles is still a few years away, politicians, electric utilities, and auto companies are eagerly awaiting the opportunities that may arise from reduction of emissions and gasoline and oil consumption, new services and increased revenues, and new markets that would create new jobs. For consumers, plug-in vehicles will significantly lower operational costs when compared with traditional gasoline cars. The savings are potentially high, in average, as electricity cost mile work out to about one fourth of gasoline. But it is noticeable to consider PHEV effects on distribution systems. Plug-in vehicles will represent a substantial new load on the existing distribution networks and will significantly alter the load pattern of consumption. In this paper, influence of intelligent distribution network on plug-in hybrid electric vehicle penetration level is investigated. It is shown that cost saving from society point of view follows an n-shape trajectory by increase in plug-in hybrid electric vehicles' penetration level in a definite smart grid level. It is demonstrated by increasing smart grid penetration level, optimum number of PHEV .increase significantly

کلمات کلیدی:

Terms—plug-in hybrid electric vehicle, smart grid, penetration level, distribution systems, CO₂ emission, oil import

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