

# **Offer the optimal price offer for electric vehicle participation in the electricity market**

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**With the restructuring of the electric power industry and the creation of the electricity market, all electrical energy-related economic transactions are carried out in the form of a market of electricity, in the long-term and short-term contracts. In such a situation, all units of production and consumption are trying to reduce their costs and maximize their profits. On the other hand, public acceptance of the use of clean units, such as electric vehicles, is increasing day by day. On the other hand, if a mechanism can be implemented in the electricity market that benefits both the consumer and the independent operator of the system, it will increase the overall system's satisfaction. Electric vehicles are one of the opportunities that can benefit electricity sales with the right participation in the market, and with the presence of peak hours in the market, it will prevent a sharp rise in market prices and market balances. But if the participation mechanism of these cars is not optimal in the market, these units are considered as load for the system and may even lead to higher prices in the market and as a result of the cost of the electric vehicle itself. Hence, in this study, a detailed model for the participation of electric vehicles in the market is based on a dual purpose function including cost function and propagation function. This objective function is optimized by considering the exploitation constraints of the system and the physical constraints of the resources with the help of Cuckoo's metamorphosed algorithm. In this study, we have tried to consider a variety of dispersed generation sources along with electric vehicles in order to provide a comprehensive model for the participation of electric vehicles in the market. The proposed method has been implemented on the IEEE standard 33-bus system by considering the algorithm of electric vehicle owners and multiple operating scenarios and the results have been discussed.**

**Keywords : Keywords: Electric vehicles, Electricity market, Multiple objective**

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**function, Cuckoo search algorithm.**

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