

Master thesis

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Public acceptance of dynamic electricity pricing: A stated preference study with electric vehicle owners in Germany

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Abstract

The electrification of transport and increasing shares of intermittent renewable electricity generation challenge the future provision of an affordable and reliable electricity supply. Demand response measures for electric vehicles shall help to better align electricity demand and supply. However, there are only a few studies which examined whether the affected end consumers are willing to accept demand response measures and under what circumstances. This thesis aims to contribute to this research gap by analysing the preferences of German electric vehicle owners for dynamic electricity pricing which is a potential demand response measure.

The data was collected using a self-administered online questionnaire. In total, 185 eligible answers were received. The questionnaire design followed the guidelines of stated preference techniques. To model which factors influence consumers' acceptance of dynamic pricing, an ordered logit regression was conducted.

The results show that there is a significant acceptance from electric vehicle owners for dynamic electricity pricing. 86% of the participants stated that they would accept dynamic pricing. The acceptance seems to be mainly motivated by the perceptions that dynamic pricing contributes to financial and environmental benefits. Moreover, the results highlight the importance of trust in the energy supplier and the ownership of a smart meter. In contrast, socio-demographic and pro-environmental factors have not been found to drive acceptance.

This thesis confirms the potential to target electric vehicle users for dynamic pricing concepts. Further research should focus on identifying the preferences for specific dynamic pricing programmes and demand response measures with representative samples. Moreover, policymakers should take these results as an additional signal to reduce the regulatory barriers to dynamic electricity prices and, for example, to accelerate the smart meter deployment.