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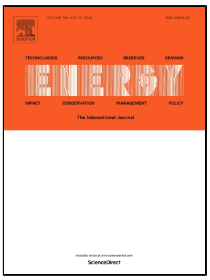

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On the drivers of peak electricity demand: what is the role played by battery electric cars?

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Abstract

The analysis of the drivers of both peak electricity demand and renewable electricity generation constitutes the main objective of this paper. Data from 2010 to 2016 for a panel of 20 European Union countries were used. Two models were estimated using both Panel-Corrected Standard Errors and Driscoll-Kraay estimators with fixed effects. These estimators were robust in the presence of cross-section dependence, first-order serial correlation and heteroscedasticity. The main results suggest that renewable electricity generation and the penetration of battery electric vehicles into the automotive market are helping to decrease peak electricity demand. At the same time, it was confirmed that employment in this industry sector is increasing peak electricity demand. The existence of peak periods was shown to be the main barrier to the integration of renewables into electricity systems. It seems that policies focused on Demand Side Management have been effective in integrating renewables in contrast to their lack of success in reducing peak electricity demand.

Keywords: Peak Electricity Demand; Demand Side Management; Battery Electric Vehicles, Renewable electricity generation