

## research highlights

### ENERGY CONSUMPTION

## Habits determine demand

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The liberalization process in the electricity market dates back to 1982. Since then, a number of pro-competitive measures have been introduced to promote competition among producers. However, the downstream sector, and retail markets in particular, remains dominated by great inertia: consumers never face real-time price signals and have limited control over the true cost of their consumption habits. This is a legacy of the traditional business model, but the transition toward more flexible and increasingly decentralized systems requires a greater understanding of demand dynamics. To address this issue, Jacopo Torriti from the University of Reading, UK, studies how time-dependent social practices impact individual and aggregate demand profiles in the UK.

Torriti uses a sample of 3,554 responses from the 2005 UK Time Use survey to measure a time dependence metric, defined as high recurrence of the same practice at the same time of the day, for six main activities: preparing food, cooking, washing clothes, cleaning, watching TV and using a computer. The study demonstrates that watching TV and preparing food show the greatest time dependence. Additionally the analysis identifies that Tuesdays, Wednesdays and Thursdays show the highest cumulative time dependence for the six practices. These findings have major implications for the current tendency to shift peak demand in the residential sector to accommodate variable renewable energy generation. They also imply that economic incentives and technological appliances developed to alter the demand profile need to take into consideration the wider social and cultural environment in which those practices are currently performed.

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