

Domestic flexibility could reduce peak electricity demand by up to 23%, new study shows

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- **Largest UK domestic flexibility study found that engaged households can significantly reduce peak electricity demand by using time-of-use tariffs**
- **Study will help inform transition to net zero carbon emissions and could help reduce balancing costs**

The UK's largest domestic flexibility study has found that active households could significantly reduce peak electricity demand by using time-of-use tariffs.

Crowdflex, undertaken by National Grid ESO, Scottish and Southern Electricity Networks Distribution, Octopus Energy and Ohme, investigated how 25,000 households responded to price signals by reducing or increasing electricity demand.

The study analysed the impact of two types of signalling to customers:

1. Enduring signals, created by customers who chose to move from a flat tariff to a time-of-use (ToU) tariff
2. One-off signals, which asked customers to sign up to a "Big Turn Up" or "Big Turn Down" event and rewarded those who changed their demand over a specified two-hour period

Customers on ToU tariffs significantly reduced their demand during the evening peak by 15-17 per cent and maintained that reduction over six months. Households that owned an electric vehicle (EV) showed a greater ability to flex their demand, achieving reductions of up to 23 per cent in the proportion of a household's daily demand consumed during the evening peak.

Responses to one-off signals were similarly significant and strongly affected by EV ownership. The "Big Turn Up" saw an increase in the magnitude of average electricity demand expected during a household's evening peak by 617 per cent for EV owning households, or 131 per cent in non-EV owning households. The "Big Turn Down" request saw very significant reduction in demand compared to the average evening peak power demand; a reduction of 59 per cent and 41 per cent in demand over the period for EV households and non-EV households, respectively.

With electricity demand predicted to approximately double according to [National Grid ESO's Future Energy Scenarios](#), the opportunities offered by time-of-use tariffs can help manage

demand and help balance the grid which will be crucial in delivering a net zero future cost effectively.

Geoff Down, Innovation Manager, National Grid ESO, said:

“System flexibility is vital for future system operation and we’re encouraged to see that engaged consumers can, by participating in Time of Use tariffs, help manage and reduce peak electricity demand. With the use of low carbon technologies in the home set to grow rapidly, this project helps us understand the exciting opportunities for us in the future.”

Project partners hope to undertake future trials to investigate the reliability, consistency, and the cost of domestic flexibility.

ENDS

Notes to editors

[CrowdFlex Phase 1 Final report](#)

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