

# AI Project Aims to Empower Households for Net Zero Transition

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**A groundbreaking two-year project, “AI: Justice, Energy, Demand flexibility and AI for Sustainability” (JED-AI), is set to investigate how households can make informed energy-related decisions to contribute to the drive towards Net Zero.**

The project will explore the factors that influence household participation in energy demand flexibility services (DFS), such as shifting energy-intensive activities to times when renewable generation is high and tariffs are low. DFS helps balance demand and supply in the electricity network, promoting green energy use and reducing reliance on fossil fuels.

Low Carbon Technologies (LCTs), including solar panels, electric vehicles, heat pumps, smart energy-efficient appliances, and AI-driven energy management solutions, are crucial for achieving Net Zero. However, their adoption has been hindered by challenges in integrating them into daily household routines and ensuring effective use.

JED-AI will integrate AI and social science analyses to develop just and sustainable interventions for energy demand flexibility. Researchers will monitor and evaluate both interdisciplinary processes and energy, justice, and sustainability outcomes, aiming to generate new insights into AI for the transition to Net Zero.

Co-led by Professors Vladimir Stankovic and Lina Stankovic from the University of Strathclyde’s Electronic & Electrical Engineering department, the project is one of 36 breakthrough initiatives receiving funding from UKRI. The team, coordinated by Strathclyde, includes the University of Oxford, the University of East Anglia, the Energy Systems Catapult, and Hugo Technologies Limited.

Professor Lina Stankovic said: “Our research will investigate how to empower households, from those already having one or more LCTs, to those struggling to pay energy bills, to change how and when they use energy.

“A previous UK-wide DFS trial run by the National Grid showed an increasing divide in household smart energy capabilities across income, age, and home ownership groups, to adapt quickly to LCTs.

“While many householders benefitted from shifting their energy use to a lower tariff on short notice, people living with health conditions, those with financial stress, and smaller or larger than average households were less able to participate.”

Professor Vladimir Stankovic added: “We are developing an inclusive approach to strengthening households’ capabilities to take part in existing and emerging demand flexibility services.

“The research is exciting as it challenges perceptions on the benefits of research and practice across the disciplinary spectrum, bridging the gap between social science and engineering methodologies.”

The UKRI funding supports new and innovative interdisciplinary research that transcends traditional disciplinary boundaries, aiming to address pressing societal problems. Professor Alison Park, UKRI Cross Research Council Responsive Mode champion and Deputy Executive Chair of the Economic and Social Research Council (ESRC), emphasized the importance of collaborative efforts across different disciplines to tackle complex challenges.

Professor Alison Park, UKRI Cross Research Council Responsive Mode champion and Deputy Executive Chair of the Economic and Social Research Council (ESRC) said: “The perspectives of different disciplines, working together in collaboration, are vital to solving some of the most pressing problems we face as a society. The UKRI cross research council responsive mode scheme is designed to break down silos and champion research that transcends, combines and significantly spans traditional discipline boundaries.”