research highlights

SMART GRID TECHNOLOGY Seeing home energy in the home

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Smart grids aim to align renewable energy generation with demand, but achieving this goal depends on how householders interact with smart technologies and the extent to which they engage in home energy management. Robin Smale and colleagues from Wageningen University examined how householders living in smart homes that had a smart heat pump, solar panels with domestic energy storage capabilities (home battery) and energy monitoring tools perceived and interacted with these new smart grid technologies.

The researchers conducted 'show and tell' home tours and interviews with householders enrolled in a smart grid pilot in the Netherlands. Compared with heat pumps and home batteries, which were typically located in storage or utility areas, respondents interacted regularly with in-home energy monitoring displays, developed habits around checking them and used the information provided to guide behaviour. However, developed practices around energy monitoring were disrupted when the in-home displays were replaced with an online platform. Unlike the in-home displays, householders were generally dissatisfied with the online platform, which was more difficult to access and allowed for less family interaction around energy monitoring. Consequently, householders were less motivated to monitor and time-shift energy without the in-home displays. These results highlight that having information about energy use present in domestic living spaces is important for developing and maintaining active energy management.

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