Smart meters could cause conflict for housemates, study shows

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Arguments about whose turn it is to do the washing up, negotiating rights to the TV remote control and disputes over noise—as many students returning to university for the new academic year are about to learn the hard way, sharing a house can be a tricky business.

And now research from academics at The University of Nottingham has revealed that new technology to allow people to monitor their energy usage in the home could be about to ratchet up the tension.

The study by a team of technology experts and psychologists found that meters which allowed residents to look at both communal and individuals' energy use could lead to feelings of shame and anger among those house sharing, potentially creating conflict.

Dr Caroline Leygue, from the University's Horizon Digital Economy

Research, said: "Importantly, beyond simple effects on energy use, we were interested in how these displays influenced emotions and the interactions that people had around them. For example, if people saw that someone used more than their fair share of energy, depending on the display they felt more anger, or guilt and fear—not the intended consequence of installing an energy display!"

Next year will see the start of a Government initiative to roll out the installation of new Smart meters in all UK homes by 2020 in an effort to tackle the problem of soaring consumer energy bills.

The smart meters will allow people to see how much energy they are using and how much it is costing. The idea is to encourage consumers to use less gas and electricity.

However, to-date there has been little research into how the new smart meters might change behaviour, particularly in homes of multiple-occupancy - despite the fact that less than 30 per cent of homes in the UK are currently inhabited by only one person.

The Nottingham research, published in the journal *Frontiers in Energy Research: Energy Systems and Policy*, randomly placed volunteers into one of two theoretical scenarios—one in which they all split the energy bill but one or more people are using more than their fair share (free-riding) and another in which the energy is used equally in the household.

Both scenarios depicted a situation where the study participant shared a house with three other people that he or she did not know – a common situation in the UK.

In the equal split scenario, it was explained that each person paid £20 each towards the bill, while in the free-riding scenario the energy display showed that more energy was used by one or more people, yet the bill

was still equally divided with each housemate paying £35.

Within the scenarios, they were shown one of three types of smart meter displays that, to a varying degree, could identify which housemates were using more than their fair share. They then had to answer a series of questions about the scenarios, their reactions to the situation and how much energy they were likely to use in the future.

The results showed that the more information people had on the display about their other housemates' usage, the more angry they became and wanted to punish those who used too much.

As a reaction to this, more than one-third of people (36.4 per cent) said they would call a house meeting to discuss the issue, while almost one-quarter (24.7 per cent) said they would make sure that the free-rider would pay more in proportion to the energy they had used. More than one-fifth of people (23 per cent) said they would confront the person using more electricity and ask them to reduce their electricity use.

No one said they would ostracise the free rider, just 1.8 per cent of the participants said they would gossip about the free-rider with other housemates and interestingly less than one per cent (0.8 per cent) would decide to do nothing.

In situations where only an average energy use display was used, people were more likely to feel fearful and guilty, which was also associated with an intention to reduce their own energy use. They were also more likely to use a more conciliatory approach when dealing with a situation in which an unidentified housemate had used more energy, such as asking all housemates to switch off appliances when not using them.

The research has important implications for the design of future domestic smart meters. It shows that average energy display smart

meters, similar to those being rolled out across the country, are more effective in encouraging people to reduce their energy use.

However, in a situation where one housemate, who cannot be easily identified, is using more than their fair share of energy, it leads to negative emotions which could cause anger and conflict in the household.

More information: *Frontiers in Energy Research: Energy Systems and Policy*, journal.frontiersin.org/Journa … enrg.2014.00029/full

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