Electricity in the Home: How, Why and When do People Use it?

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Introduction

Innovative ways need to be found of fostering a transition to low carbon, secure, affordable energy systems. In addition to developing low carbon forms of energy production, efforts also need to focus on the ways that people can reduce their energy consumption in everyday life, including in the home. By investigating the ways people relate to and interact with electricity in their homes this project will consider how to best support and facilitate uptake of innovative electricity supply technologies, and attempt to understand how people’s relationships with electricity affects their consumption.

Aims

The following research question was devised to outline the aims for the project:
- How do consumers understand and interact with their existing electricity supply system in the home?

The research presented in this poster is based on focus groups undertaken in Phase 1 (see Methods) to answer the above question and inform future research to help answer questions relating to research phases 2 and 3.

Methods

- The relationships people have with electricity within their homes.
- The reasons for consumption and meanings this consumption has.
- lifestyles + routines

Phase 1: Focus Groups, December 2012 – July 2013

Phase 2: Development of Scenarios + Top & Tail Expert Interviews, May 2013 – September 2013

Phase 3: Follow-up Interviews, September 2013 – January 2014

5 Homogenous Groups (Young Professionals; Retired Homeowners; Shared Student House; Mothers with young children; Residents with Solar panels)

Findings

Thinking about electricity
- Risk/Danger
- Perceptions of physical infrastructure
- Gender differences in how electricity is perceived and discussed

Lifestyle Changes
- Moving house
- Parenthood
- Childhood
- Changing work patterns
- Leaving home (and becoming bill payer)

Modern Living
- Specification of consumer products
- Increased no. of products in home

Homeliness
- Comfort
- Freedom
- Communication/connection with "outside world"

Reducing Consumption
- Routine Consumption
- "Turning things off"

Energy Saving Practices
- Discussion about electricity with members of household

Visibility of electricity
- Desire to quantify consumption
- Energy monitors raise awareness of consumption

Money
- Solar PV: "Turning with the sun"
- Consumption Threshold
- Spillover
- rebound

Solar PV
- Investment due to financial, as opposed to ‘green value’ reasons.
- Solar panels perceived to be a ‘respectable’ investment.
- However, evidence for (financially motivated) unanticipated pro-environmental behaviour change after installation:
  - Product changes (energy-saving light bulbs, timers etc.)
  - Changing domestic practices (e.g. cooking, washing)
  - Changing consumption patterns and routines to sync with the sun
  - Raised interest in other potential energy-related investments
- However, in addition to positive ‘behavioural spillovers’, evidence for ‘rebound effects’ was also discovered as participants made use of ‘free’ electricity and increased consumption on sunny days.

Implications/Next Steps

- Participants invested in Solar PV purely for financial reasons, and then changed their routines, resulting in shifting consumption patterns (helping to reduce peak demand). Further work could investigate ways this could be applied to other technology and/or policy interventions.
- Non-negotiable consumption and financial thresholds may have important implications for potential policies (e.g. tariff interventions). Interesting questions are also raised by the contradiction between participants advocating economics as a driver of consumption-related behaviour, whilst at the same time suggesting that other aspects are as, if not more, important.
- These findings will be considered and further investigated upon in follow-up interviews to help understand perceptions of future domestic electricity use and the implications this may have for possible innovations in electricity supply and provisions.