

# Co-designing future energy services

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My name is Dr Stuart Cockbill, and I am a Lecturer in Design at the School of Design and Creative Arts (SDCA), Loughborough University. I have a background in Product Design (MDes) and Inclusive Design (MSc), and hold a Ph.D. that explored the role that co-design and creative design research methods can play in the energy context.

My research focuses on developing and applying service design and human centred design methods and tools. My goal is to enable non-designers to engage with design processes and to uncover insights that can lead to the development of more meaningful future services.

The research described in this application formed part of the REFIT Project ([www.refitsmarthomes.org](http://www.refitsmarthomes.org)) which immersed a group of householders in their 'energy data' (collected from a range of 'smart' energy meters installed in their homes) over a period of one year.

A bespoke co-design process comprising a range of creative and interactive tools was used to engage the householders with their personal energy data, to explore their intentions towards retrofitting their dwellings to improve energy efficiency, and to identify with them opportunities for future energy-related services that would benefit householders.



Figure 1. 'Forced Association' co-creation activities for ideating future energy services with householders.

The co-design process first sensitised the householders to the broader energy and home context with a home energy audit and a personalised creative workbook designed to provoke consideration of their lifestyles, aspirations and future plans, and the role of energy within these.

A series of home visits followed comprising collaborative activities (e.g., reviewing personal energy reports, card sorting activities with personalised visual prompts, as shown in Fig 2.) designed to provoke dialogue about current and future energy use and courses of action the householders might take. The home visits closed with a bespoke ‘forced association’ idea generation activity using a set of visual prompt cards (Fig 1) to enable the householders to consider the potential usefulness of the energy data being collected from their homes and to generate insights into how they might wish to engage with their energy data in the form of future services.

The findings were used to co-develop a set of 11 future energy services that could use ‘smart data’ to support householders in reducing their energy use with a group of technologists and human centred designers. The outcomes were further refined using insights captured from a final workshop activity (Fig 3.) with the original householders who had been sensitised long-term to the energy and retrofit context.

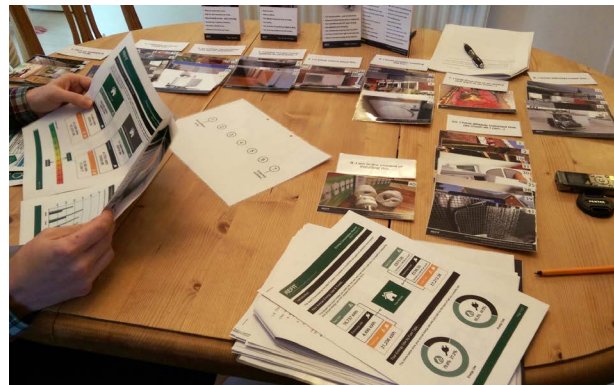


Figure 2. Incorporating personal energy data.

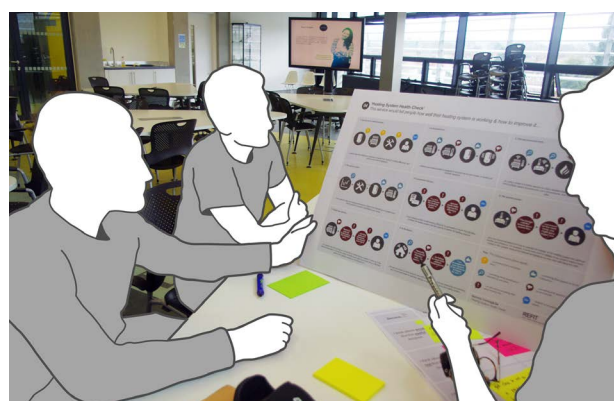


Figure 3. Co-developing future energy services.

## How can participatory design and co-creation approaches contribute to the development of energy efficiency solutions that work with, rather than against, practices in everyday settings? (Q39 - ‘Energy Efficiency’)

From a methodological perspective, the co-design approach I have developed in my research offers a range of avenues for impact on the development of useful and meaningful energy efficiency solutions.

Co-design approaches, methods and tools can help to engage people with the ‘intangible’ topic of energy – making it more visible and enabling them to draw connections between their energy use and how they live. Incorporation of personal energy data (i.e., energy data related to each individual participating household) within collaborative research studies can act as an extended sensitisation tool to foreground the topic of energy in people’s minds. This enables learning, provokes discussion, deliberation, debate, and consensus reaching leading to the discovery of



Figure 4. Examples from the SDCA Design Research Methods Toolkit.

detailed insights and the uncovering of more nuanced user needs. Further, such approaches foster sustained engagement of participants by providing them unique insight into their lives via enjoyable activities that make an ‘unsexy’ topic more appealing. Iterative and longitudinal engagement of participants also means that they are well placed to contribute to the development of energy efficiency solutions based on their growing understanding of the topic.

The insights generated by engaging co-design approaches can be used in a variety of ways. For industry, stakeholders developing new energy technologies can learn from the insights generated, for example, by drawing on the perceived benefits and drawbacks of the service concepts generated, and by adopting the methodological approach taken to generate new knowledge about what future services could be and to understand what solutions people will find useful and meaningful. Further, co-design approaches can also support energy technologists in ‘making sense’ of complex qualitative data, enabling them to make actionable their findings and insights.

More broadly, my research has shown that participatory design and co-creation approaches can inspire

the designers of future energy services – prompting them to adopt new ways of engaging with, investigating and tackling complex topics like ‘energy’. The methods I have developed have inspired innovative teaching content for SDCA students at Loughborough University. The ‘Design Research Methods Toolkit’ (Fig 4.) provides exemplar co-creative methods, real research data and analysis guidance drawn heavily from the methods and tools described previously.

My current research project (SD4MECS - ‘Service Design for Modern Energy Cooking Services’ - a part of the wider MECS research programme <https://mecs.org.uk/>) is advancing my approach and building on my learnings so far.

SD4MECS is using service design to develop a Living Lab framework that can support the scaling of human centred design methods and tools within the modern energy cooking services context in the Global South.

The ultimate goal of this work is to develop co-creative tools to enable and empower everyday cooks to co-develop useful, meaningful and viable modern energy cooking services that are sympathetic to the everyday settings within which they may exist in the future.

