Durham University
Durham Energy Institute

Customer-Led Network Revolution

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Flexibility as Socio-Technical Capital

Dr Gareth Powells and Prof Harriet Bulkeley, Department of Geography

Demand Side Response interventions are being trialled in the CLNR project as part of the project's investigation into how customers may become involved in the managing networks. As part of this, everyday domestic practices are being opened up to external economic intervention in ways which are new to UK energy consumers. This briefing note summarises a more detailed paper which considers the ways in which the economisation of domestic activities through demand side management interventions catalyses changes in the character and culture of social practices that might lead to more sustainable futures.

Asking customers to move their electricity demand to minimise the day-in-day-out 'rush hours' on electricity systems, or to respond to exceptional circumstances is to ask them to be flexible, and to trade their flexibility for some form of benefit - reduced costs or rewards for example.

Being rewarded or paid for doing things differently, such as changing when you wash dishes or have a shower - can be thought of as providing a service rather than selling a 'good'. This means that flexibility will not be sold or bought in a one-time transaction, but must be re-purchased and re-performed again and again in response to each instance of over voltage, under voltage, generation - supply imbalance and so on. This comes with considerable socio-technical challenges which are new to the electricity industry. 'In the paper we argue that interventions seeking to create such flexibility are 'economising' aspects of everyday life. The economisation process has been theorised by Calsikan and Mckenzie (2009, 2010) as being about the commodification of entities so that they can be traded, exchanged and so on. We find that the economisation of electricity demand flexibility is not yet at this stage in the UK and that rather than a commodity demand flexibility might be usefully thought of as a form of socio-technical capital held by end users of energy. We suggest that thinking of flexibility as a form of capital rather than as a commodity may open up possibilities for various forms of economic relationships in which end users and communities may benefit.

Realising Flexibility

The extent to which flexibility is realised is not only a matter of the insertion of these new techniques and technologies, but the extent to which existing socio-technical arrangements within domestic spaces are able to accommodate and work with such interventions.

Equipped to Serve

The research has identified that representing demand (and where there are solar PV panels installed also generation) through in home display devices has led participants to use and in some cases discover some previously under-utilised or un-known elements of existing technologies, particularly device timers that enable users to stretch the time between 'instructing' an appliance and its actual operation, but also different programmes that are more economical with the use of resources and power during the use of the machine.

Examples of responses to the in home displays:

"We've had it (IHD) just over a month, about 6 weeks … since the husband left. It's brilliant. I do check it on a daily basis. Yesterday cost 54p, and 1.11 (Gas), last 7 days was 5.84."

"If they were to give me half a dozen timers I could easily run the weather station & the batteries off peak."

Uneven Connectivities

In the process of the CLNR project ICT & communication problems were recorded as a common reason for participant drop out - that is, where there is a loss of signal or connectivity customers are not able to register their provision of flexibility with the 'buyer' (the DNO or retailer). These physical blockages to data transfer also constitute blockages for the flow of socio-technical capital, preventing the grid from realising the economisation of flexibility capital. These blockages can happen within homes as a result of the situation of the meter. In other ways however, blockages create socio-geographic patterns in how communities are likely to be enrolled into smart energy networks in the coming years. These challenges are symptomatic of the uneven geography of UK digital connectivity which is not yet widely considered to be an energy problem. While densely populated urban areas are unlikely to be affected, rural communities are more likely to have mobile telephone (GSM) coverage from only one or two of the major network companies, making them vulnerable to this form of disconnection, despite rural power networks being among the most vulnerable to outages and therefore potentially able to benefit from demand side management.

References

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Durham Energy Institute
Science Labs
Durham University
Durham
DH1 3LE
Tel: +44(0) 191 334 2649
Fax: +44 (0) 191 334 2408

Contact:
Dr Gareth Powells: gareth.powells@durham.ac.uk
Dr Ellis Judson: ellis.judson@durham.ac.uk

http://www.networkrevolution.co.uk
http://www.dur.ac.uk/dei