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Customer-Led Network Revolution

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# Smart Electricity Markets

Dr Gareth Powells, Prof Harriet Bulkeley, Department of Geography
Dr Ellis Judson, Dr Sandra Bell, Department of Anthropology

**In this paper, we examine the ways in which electricity markets are being reconfigured in relation to the emergence of 'smart' electricity systems and the multiple, and conflicting, spatial logics that are underpinning such developments as they take place in urban contexts in the UK. We consider this in relation to two lines of analysis drawn from the Customer Led Network Revolution project (CLNR) which work through the economic geographies of the UK's power system and the various promises of 'smart'. First, we consider attempts to create 'smart' consumers in UK electricity supply markets, and secondly, we consider the development of new forms of 'network flexibility'**

We argue that markets are critical to the ways in which the 'logic' of the smart grid is being calculated and enacted for and that the smart metering roll out underway in the UK is a pre-condition for the emergence of smart energy markets which promise to catalyse the creation of new forms of demand and new services. However, conventional notions of 'the market' must be challenged and opened up if smart energy systems are to enable the radical changes in energy production and consumption necessitated by the scale of the energy challenges faced.

**Markets are Products**

Analyses of the current energy challenges run the risk of taking over simplistic positions on the privatisation of the industry, and the actors operating within these regulated spaces, guided by normative assumptions and essentialist notions of what markets 'are' and what they are capable of. We support arguments made by (Smith 2005) and others that within rather than against markets, there is scope for creating systems which might deliver. This disposition is an important feature of analysis which seeks to relate to the UK electricity supply industry and government as they move away from market fundamentalism toward a more open and less doctrinal era in energy policy in which interventions of all kinds could be considered (Helm 2007).

From this perspective, we argue that markets are entities which emanate from previous conditions (economic, social and technical) and which constantly re-work and re-produce socio-techno-economic conditions in the here-and–now. Following from this our analysis of smart grids and smart metering works with the notion that each is an attempt to re-configure the distribution (smart grids) and retail (smart metering) assemblages as features of what Helm calls a new paradigm in energy policy (Helm 2007, p.4) in which the balance between market logics and interventions from state, municipal and community actors is being tentatively redrawn and in which politics can resurface.

**Analysing the Geographies of Smart Energy: A Nation of Smart Customers**

The retailer-led roll out of smart meters reveals a varied geography of exclusions and elligibilities with some customers and communities prioritised while others are excluded as suppliers struggle with the already uneven socio-technical geographies of infrastructure. The challenge is to equip consumers with smart devices and connectivities which enable them to take on new roles 'demand side management' of the grid. These new roles, and the associated new markets for DSM services which energy users might provide to the grid (such as reducing consumption at times of peak consumption) require not only new competencies, sensibilities and engagements from customers but also a smooth, space for transaction, data flow and connectivity. This is in contrast to the UK's energy market assemblages, currently typified by uneven communications networks and myriad outsourced and subcontracted data and metering services which result from the splintering of the UK's electricity industry.

The geographic unevenness of these other connectivities and sub-contracts creates a discontiguous patchwork of more and less 'smart' places – determined by the ultimate ability of a retailer to get accurate, regular data from a place at the minimum cost and their ability to engage consumers with new forms of energy service. Despite these uneven geographies, perhaps the most important aspect of the spatiality of smart metering for this discussion is that smart meter customers are not geographically clustered in any intentional way as a result of the national spatiality of the supply market. While this is in line with the retailer's drivers it is in tension with any attempt to cluster engaged smart meter customers to create a smart grid.

**Making Local Networks Flexible**

At this early stage in the emergence of smart grids, network flexibility interventions are taking place not in an even roll out across a uniform space but as a place and network specific phenomena, by identifying specific networks where costs of reinforcement (both financial and political) are high and where customers are expected to be found who might enable the smartening of the network and the demands made on it. This creates a second discontiguous patchwork—this time not of consumers but of low voltage distribution networks, a minority of which are being made 'smart'.

Such interventions require a 'smooth' local space, with contiguous customer connections, the absence of contractual or connectivity boundaries or other 'striations'. The reality is that every house in a street, or every flat in a tower block will have its own supplier relationship, broadband contract, mobile phone contract and may or may not have other energy contracts with gas, oil or biomass suppliers which in various ways amplify, attenuate or prevent access to the value of a customer's possible flexibility. In some respects this process is part of the expected work of technology innovation but in important ways it is emblematic of the struggle to produce a technologically and commercially smooth market space from the current compartmentalised energy, data, technology and communications markets .

**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*