

Research Protocol

Title: ‘Energy Biographies: Understanding the Dynamics of Energy Use for Demand Reduction’

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Introduction

Energy demand reduction bears upon multiple long-term national policy goals, including low carbon transitions, energy security and affordability, and mitigating environmental impacts. Significant reductions in energy use will be essential – in the home, transportation and across business – if these aims are to be attained (Department of Energy and Climate Change, 2009). Recent work from the UK Energy Research Centre (UKERC, 2009) indicates that lifestyle change could contribute 30% in greenhouse gas emissions cuts against baseline in the UK by 2050, while in the USA similar analyses point to the potential for very significant reductions in household energy use through changes to behaviour (Dietz et al., 2009). However, there are well known complexities in achieving such changes including the difficulty people have in connecting their everyday activities with environmental impacts, the invisibility of energy use in everyday life, and ‘lock-in’ to unsustainable systems of energy practice, lifestyles and identities. This research will contribute to current theory, methodology and practice by building a conceptual and analytic approach that examines people’s energy behaviour and practices as dynamic biographical processes: that is, as emergent, contingent, and unfolding in and through space and time.

Our energy practices do not exist in isolation but are established across multiple spaces such as home, transport and work, and through a complex interplay between our own personal histories, where we come to make investments in using more or less energy intensive services, and the wider social and technical developments of particular energy systems. Building from the established understanding that people do not use energy, but rather the services made possible by energy, we adopt a holistic approach that brings into view the formation, embeddedness and development of energy practices as part of everyday life and the life-course. We use the term “energy biographies” to represent this approach, which offers the possibility to develop understanding of how significant reductions in energy use can be achieved through identifying openings for change in energy intensive life-course trajectories.

Objectives

- To contribute to theory and understanding of energy use in the everyday, through comparison of people’s different energy biographies across a range of social settings from the niche to the mainstream.
- To examine how existing demand reduction interventions interact with people’s personal histories and biographies, with a view to identifying opportunities for change and policy development.
- To develop improved understanding of which different community configurations can provide a strong basis for transitions in everyday energy consumption and practices when framed around people’s biographies.
- To explore the utility of innovative (narrative, longitudinal and visual) methodological approaches for engaging people with their own energy practices.

Research Background

For this interdisciplinary project we draw on three theoretical and methodological traditions from across the disciplines of sociology, social psychology and human geography.

I. Socio-Technical Systems and Energy Practices

The research draws centrally upon the concept of socio-technical systems as developed within science and technology studies (STS), wherein the social and technical components of functioning systems are viewed as inextricably interrelated (Bijker, 1997; Law, 1992). Within energy research this perspective is drawn on to think about energy demand in terms of linked social and technological processes through which our needs for housing, mobility, food, communications, leisure and so forth are satisfied (Smith et al., 2005). Previous research within the STS tradition has shown how this interrelationship between humans and energy technologies involves complex processes of social, political and material development (Shove, 2003). Examination of these processes provides an excellent basis for thinking about how our particular ways of living with energy come into being, how practices of high energy use develop and are reinforced over time, and the importance of long-term socio-technical regime change (Wilson and Dowlatabadi, 2007). It also offers significant possibilities for thinking about the potential for change into the future (i.e. toward less energy intensive ways of living), and the role that human agency might play in this, but has not yet been substantially developed toward this end. We argue that the overarching framework offered by STS-based analyses can be complemented by concepts derived from the biographical and temporal theory traditions in order to open up new possibilities for theorizing significant change in everyday energy practices.

II. Temporalities, Life-course Studies and the Biographical Turn in Social Theory

Contemporary biographical research argues that one consequence of modernization is that the life-course is now becoming ‘more dynamic, less-standardized and more self-directed’ (Heinz and Krüger, 2001, p29). This line of analysis also highlights the ways in which an individual’s understandings of the present are bound up with their narratives of personal and social history, which reach backwards as well as forwards in time (Chamberlayne et al., 2000). Such an approach offers significant potential for investigating human agency and change, as it presupposes that people can be orientated toward different possible futures and encompasses a more dynamic way of investigating ‘change-in-the-making’. It can be allied with particular conceptualisations of time and temporality that have begun to be used to explore the ways in which people’s present conduct toward the environment requires an understanding of their orientations toward both the past and the future (Adam and Groves, 2007). Such work draws attention to the importance of the ‘timescapes’, temporal vistas, or lenses that bring hitherto invisible processes and imminent (present) futures into view (Adam, 1998). From this perspective practice is seen as contingent upon, and produced within, historical processes that also provide the conditions of possibility for future continuities and changes (e.g. Finn and Henwood, 2009).

Two important implications flow from adopting a life-course/temporal perspective. First, a biographical approach is ideally suited to eliciting people’s investments in the ongoing normalcy of daily life, but also offers the potential for intervention in, and disruption of, everyday expectancies regarding what is taken for granted or considered desirable in the present. Second, a biographical approach orients us towards life-changing moments where an individual’s everyday practices and lifestyles can become set on a particular course: becoming a teenager, adult or parent; major transitions in work, relationships or group memberships; moving house etc. Many of these life-moments presently serve to ratchet up our energy use (as when an increase in personal income leads to purchase of a larger house), although they clearly need not necessarily always do so. We currently know very little about the ways different life-course transitions are interpreted by individuals in terms of impacts on their energy use, how such understandings are bound up with the different community contexts that people inhabit, and the possibilities that such transitions offer for energy demand reduction, all questions which the current research is explicitly designed to address.

III. Spaces of Community

The final strand of theory grounding the present project concerns contemporary notions of community and its relationship with space and place. Complementary thinking within human geography, sociology and social psychology suggests that community is increasingly becoming divorced from traditional conceptions of territoriality or nation, and instead is often manifest through various brands, social groups, interests, affect, or as communities of practice where shared identities emerge from situations of collective learning

(Wenger, 2006). Space in turn is currently thought of as relational and interrelated (i.e. with other spaces, times and places), meaning that the idea of community can encompass multiple configurations which manifest in, through and within different spaces (Massey, 2005). This relational quality means that people are not viewed as being members of ‘a community’ but rather as sharing and moving between multiple, loosely defined networks and spaces (e.g. work, home, leisure, travel) as they navigate through their everyday lives. This implies a need to regard individuals as mobile agents, through examining which spaces, persons, networks, ideals and values they themselves include within their own understandings of community. This interpretation aligns well with the energy biographies framework, and deepens our ability to investigate the temporal and spatial embedding of energy practices in the wider social context of everyday life, and how people’s own understandings of the communities they routinely inhabit can constrain or stimulate different energy (saving) practices.

Research Questions

The following specific questions will guide the research.

- *In what ways can the study of energy biographies create the empirical and conceptual basis for examining energy practices?*
- *To what extent do such biographies render visible to people their everyday use of energy, the ways that their different practices are maintained, and the key life-course transitions that have shaped their current lifestyles and energy practices?*
- *Are there opportunities for significant change in personal and social life-course trajectories in relation to energy practices, and what are the implications of the very different existing demand reduction interventions (found in situ across the various fieldwork sites) for these aspects of people’s biographies?*
- *In what ways do different community configurations (e.g. across home, work, leisure, travel activities) support or limit the maintenance and development of existing energy reduction interventions when framed around people’s biographies?*

Case Sites Overview

The research takes place in three very different case sites to provide possibilities for examining important contextual dimensions of varied interventions (e.g. costs, locus of responsibility, ownership, level of behavioural commitment). The cases span a continuum from ‘mainstream’ social contexts, where existing demand reduction interventions are present but do not feature as central to participants’ current everyday activities, to ‘niche’, which involve substantial community sustainability and energy reduction innovations. At the extreme ends of the spectrum our niche site is Lammas Eco-Hamlet, which was a winner of one of the Department of Energy and Climate Change Low Carbon Communities Challenge (LCCC) awards, while our mainstream site will be London and staff sampled from the Royal Free Hospital. The RFH has made technological and behavioural interventions to reduce the energy demand of the hospital but on the whole the interventions are not beyond those that many of us experience across the UK. In addition, the staff we sample from the hospital will not (necessarily) have involvement with any energy related interventions in their home life – this is something that will be considered within the participant sampling. The final case site (Cardiff) sits closer to the middle of the niche–mainstream spectrum. For this case site we are sampling across two local community projects; the ‘Futurespace’ initiative in Ely and Careau, and local community organisation ‘Peterston Connect’, both of which are undertaking more considerable interventions in mainstream contexts, engaging their communities through solar PV installation projects, home energy surveying and wider communications about saving energy. We have secured stakeholder participation agreements in all of these sites. More detail about the sites is provided below:

Mainstream – Niche Sites:

I. Royal Free Hospital ('RFH'), Hampstead, London.

The Royal Free Hampstead NHS Trust has 900 beds and sees approximately 700,000 patients a year. It is one of the largest employers (4,600 people) in North West London, with an annual turnover of about £450 million. The UK Government is targeting such large organisations through initiatives like the CRC (Carbon Reduction Commitment) Energy Efficiency Scheme, which came into effect in April 2010. The hospital has already developed a carbon management and implementation plan, including activities to reduce energy consumption and “develop and promote a more ‘Green’ culture” (RFH, 2008, p5). This case site thus provides a unique opportunity to examine the wider impacts upon employees (across both their work and home practices) of interventions initiated within a large public sector organisation.

II. City of Cardiff, South Wales,

Cardiff is the capital city of Wales. A range of local community initiatives for reducing energy consumption are aimed at residents across the city. Participants will be sampled from two socio-economically differentiated areas where there are community groups engaging people in significant energy related interventions. Peterston Connect is a local organisation in an affluent village community on the outskirts of Cardiff. Established by local residents, Peterston Connect is a sustainable development group which has been running for around two years. One of their current initiatives is related to solar PV, which local residents are self-funding. Ely and Careau is a socially deprived inner-city area. The Futurespace initiative is part of a wider organisation (ACE) created through the local Communities First programme, and is also focussed on installing solar PV in the local community, funded through a large company external to the community.

III. Lammas Low Impact Initiatives Ltd, Pembrokeshire, Wales.

Lammas ecovillage is under construction in Pembrokeshire, West Wales. Lammas is using a combination of green technologies, permaculture cultivation methods and natural building techniques. Their proposal under the LCCC included developing eco-smallholdings for 9 families, a campsite and a community hub building. The community at Lammas is completely off-grid and residents need to demonstrate that they are able to meet 75% of their household needs directly from the land within 5 years as a condition of their planning permission. The aim is to combine land-based livelihoods with carbon-neutral housing while also developing a replicable model of integrated rural sustainable development.

Participant Sampling

In *Phase I* of the research (see below) 30 participants will be recruited for an individual interview at each of the 3 case sites (total n=90). A strength of the research design is that very different social contexts will be studied, but this in turn means that sampling strategies will differ according to the specific circumstances of each case. In Cardiff the stakeholder organisations we will be working with have email lists through which they have agreed to circulate information on our behalf. We will also make attempts to sample more widely within these communities to access people who are not involved with the projects and ensure we are incorporating a range of diverse social characteristics (e.g. socio-economic status, age, gender, dependents at home etc.). In RFH London initial contacts will be established through an institutional representative (i.e. the Director of Estates, Martyn Jeffrey), this will be followed up by snowball sampling if necessary, with the aim to ensure heterogeneous samples at each location. For Lammas, due to the small number of those involved, a significant proportion of the whole community will be engaged initially together with participants from nearby communities (to examine issues of community inclusivity). For the follow up extended biography work in *Phase II* we will select a subset of up to 10 participants (anticipating drop-outs) at each site (total n=30) from the initial samples of 30 interviewees using purposive sampling (Finch and Mason, 1999). The intention will be to sample across individuals with a broad range of biographical circumstances and varied views on energy, its use and the existing site-interventions. It is typical in qualitative research to have relatively small samples due to the large amount of detailed data that qualitative interviews produce. This is particularly the case with collecting longitudinal data from a section of the

sample (Yates, 2003). We have decided on a sample of 30 people from each case site in order to ensure a balance between representing a broad range of biographical circumstances and ensuring the amount of detailed data collected is manageable. The reduction to 10 people from each site for the latter phases of the study reflects the additional time needed to analyse this detailed data set.

Methods and Approach

To achieve our research aims, we will draw on well established principles and practices within the interpretive, qualitative social sciences (Andrews et al., 2008; Denzin and Lincoln, 2004; Henwood and Pidgeon, 1992), to produce a bespoke methodology for examining energy biographies. An essential prerequisite will be to generate data where study participants engage with, and are able to reflect on, their lived experiences and energy practices in ways that are both meaningful to them and maximally useful given the research questions (Henwood, Pidgeon et al., 2008). Our chosen methods (see below) will produce a range of narrative, visual and multisensory materials that are textually, temporally and contextually rich enough for us to study the dynamic interplay between the personal investments people make in services that require using energy (both over the life course and in the spaces and places of everyday living) and wider processes of socio-technical development.

Stakeholder Interviews

An initial phase of interviews conducted with case site representatives, as well as wider interested stakeholders, will elicit detailed contextual information for each case site: to include general history, social context, and past, current and planned energy interventions. These interviews will also help to facilitate user engagement at the very start of the project, development of the participant sampling frames, and potential local dissemination routes.

Phase I: Narrative Interviews

In order to focus on energy biographies we are investigating peoples' narratives of experience (Squire, 2008) relating to energy practices. In particular, we will conduct episodic narrative interviews (Satterfield, 2001; 2002; Elliott, 2006) to elicit personal event narratives (Squire, 2008) that will encourage participants to revisit key moments of their life histories (e.g. transition to adulthood) and aspects of their everyday life (e.g. established routines) to prompt an emerging awareness of their personal investments in energy practices. Narrative interviews have been selected as they are particularly amenable to encouraging talk which involves biographical, temporal and spatial extensions (Henwood et al., 2010). Whilst interviews will begin from different starting spaces (e.g. home or work), stories about all the spatialities (including leisure and travel) relevant to our interviewees will be elicited. The interviews will also encourage discussion and reflexivity related to their perceptions and evaluations of the energy reduction interventions in their case site, as well as notions of community and space, contextualised through the telling of their lived experiences. This Phase I work will generate an extensive qualitative data corpus suitable for comparative narrative analysis across the case sites and a range of different energy biographies.

Phase II: Extended Biographies and MultiModal Methods

Phase I single interviews will produce important insights through the stories people tell about their personal investments in energy using services as established through their life-course. Adopting qualitative longitudinal (QL) methods will further equip us to study energy biographies in more extended ways as they unfold and change dynamically through time. Neale and Flowerdew point out how QL methods are concerned not with the precise measurement of discrete variables to establish their causes and effects within a chronological sequence (as in *quantitative* longitudinal research), but 'with the agency of individuals in crafting these processes, the sensibilities and moral cultures that underpin them and the local cultures (social space, locality, artefacts, symbolic representations and so forth) through which they are given substance' (2003 p.192). Accordingly, the 'long-view' offered by QL research provides the possibility of developing more complex and realistic understandings of how and why individuals and communities live as they do, as well as the (un)intended consequences of interventions and policies themselves (Thompson, 2007).

For Phase II, we will select a subset of our Phase I participants from each case site to engage in longitudinal research incorporating repeat interviews after approximately 5 and 10 months. This will provide a rich resource for understanding the complexities revealed by personal narratives, by focussing on the textual means through which the past is used to construct the present, how the past comes to be reworked in the present, and how imagined futures reconfigure biographical meanings past and present. We will study ‘storied life’ as a way of attending to the existence of multiple perspectives that are bound up with people’s varying orientations to ‘then, now and next’ in respect of their energy use. We will be particularly interested in whether adopting such differing timescapes might radically alter the ways in which people engage with their own life stories as part of an ongoing social process (Greene, 2003) of energy consumption and transformation of energy use.

To achieve greater purchase on process or ‘practice-in-the-making’ we will employ visual and interactive methods in the periods between interviews, facilitating insight into lived experience beyond the interview setting. Our lives are multi-sensory (encompassing sight, smell and so forth) and meaning can be expressed through more than one semiotic resource. In this sense visual and other sensory approaches (incorporating for example use of digital cameras and an internet hub) will offer different means for our participants to engage with their energy practices and for us to capture the multimodality of interactions. A part of the problem with energy invisibility in the everyday is the difficulty people can have in expressing this issue in discourse – a restriction that does not necessarily apply to other modalities, e.g. the visual. Accordingly, the methods we will use serve to bring deeper reflection on energy practices and possibilities for more meaningful engagement.

Data Analysis

Bringing this data-rich project to fruition will require a carefully coordinated data analysis plan to enable cumulative, comparative and integrative analysis of data from the three sites, the longitudinal case histories of individuals, and the life story and multimodal data types. Analysis of the Phase I interviews will begin immediately following first site data collection and transcription. This initial analysis will involve setting up a data management system using a computer assisted qualitative data analysis package (e.g. NVivo 8) in which the team already have extensive experience. Established strategies and techniques of interpretive qualitative analysis will be utilised to reveal the substantive ways in which people describe, understand and explain their own practices and how they encounter energy issues. Another focus will be on the narrative features of people’s sense-making especially in terms of the interweaving of personal and social themes in order to gain insights into biographical patterns and interconnections with socio-technical energy systems. This more specialist type of analytical work will continue and develop through the analysis of the extended biographies data. The Phase II extended biographies will become the main focus of the analytical work once data collection and initial analysis for Phase I has been completed. It will involve the construction of QL case histories for participants, to examine their reflections upon how energy practices have altered or remained unchanged in and through time and, as part of this, consider their engagements with different energy systems as they are experienced in situ. There will be two further stages of analysis. One of these will draw on strategies and techniques for interpreting visual data (e.g. Henwood, Finn and Shirani, 2008). This dedicated visual analysis will be combined with the interview transcripts to develop a form of multimodal analysis to generate insights concerning the “plurisensory” (Pink, 2004) nature of energy use in everyday life. The final stage of analysis will be comparative and integrative across all sites and data types. Its purpose will be to draw out the wider lessons from our study of energy biographies for understanding i) the capacity of different community forms to contribute to successful demand reduction interventions with a view to furthering development of energy policy, and ii) the transferability of different energy reduction/efficiency practices across different living contexts.

Intellectual Environment and Development

The project involves collaboration between academics in the School of Social Sciences and the School of Psychology at Cardiff, both among the very highest ranked research Departments for their respective fields in the UK in the 2001 and 2008 RAE exercises. The team is interdisciplinary, spanning social psychology,

sociology (STS) and geography. The investigators have worked together successfully across several major projects, bringing complementary leading-edge expertise in: narrative approaches to public understanding and acceptability of energy technologies and their risks (Pidgeon, Henwood and Parkhill - *ESRC Social Contexts and Responses to Risk Priority Network*, RES 336-25-0001); in energy systems, demand and practices (Pidgeon, Butler and Parkhill - *Leverhulme Trust Climate Change and Energy Choices Project*, F/00 407/AG); and in temporal research and biographical methods (Henwood, Shirani - *Timescapes ESRC Qualitative Longitudinal Network*, RES-347-25-0003). All of the investigators have expertise in using advanced qualitative research methods, while the chief investigator has extensive experience in managing and delivering major projects for the research councils, government, and charities. These intellectual and methodological antecedents provide the basis for development of the conceptual framework proposed here.

Outputs and Impact

The research will generate two extensive and novel data sets (from *Phase I* and *Phase II* respectively), as well as conceptual and theoretical development, suitable for constructing a fundamental understanding of the development and maintenance of everyday energy practices. It will further contribute to thinking about how such practices might become transformed across different social and community settings. Uniquely, our biographical approach to investigating energy practices will provide insights into potential openings for intervention in energy intensive life-course trajectories. The work will also be of longer-term methodological significance: demonstrating the value of a life-course, narrative-based approach to energy practices research is novel and likely to bring significant international academic interest. In more immediate terms, the research will provide comparative insights into the ways that different existing energy demand interventions are interpreted by members of the public, their compatibility with different lifestyles and community forms, and the means for understanding how their implementation and uptake can be supported. The outputs will be disseminated through a range of activities and will be of use for stakeholders in government and at the local sites, the energy industries, NGOs, and academics across a number of disciplines.

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