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Practicing energy prosumption: Using unsolicited online data to reveal the everyday realities of solar thermal panels in the United Kingdom



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ABSTRACT

International targets for emissions reduction are encouraging increasingly more households to become energy producers. We present analysis of Mumsnet, a UK online discussion forum (19 million visits/month), to explore unsolicited accounts of these energy prosumers to understand their motivation and experience of installing and living with one type of microgeneration technology: solar thermal panels for hot water. In so doing, we challenge research and policy approaches that assume financial and environmental motivations as dominant in household uptake of microgeneration technology. We draw attention to the wider reality within which energy prosumption practices are performed, how they coincide with other home improvements, and how they relate to expectations about modern lifestyles. To conclude, we discuss the implications of this for policy.

1. Introduction

Microgeneration has become an important part of energy strategies for many governments around the world, hailed as a way to lower carbon emissions [1], decrease energy costs to householders by adding to the diversity of the energy supply [2], and improve energy security [3]. Research has attempted to explore the uptake or acceptance of domestic microgeneration technology [4–7], yet much of this scholarship tends to focus on the economic rationale for installation and does not adequately acknowledge the ways in which such technology intersects with daily domestic practices. In order to understand how we might improve the uptake of microgeneration in the domestic context to meet energy targets, we need to redress this oversight and ask not just about householder's 'motivations' for saving energy or investing in renewables, but instead to ask how these activities fit with more mundane routines and concerns [8].

Our study, based on research using unsolicited online data, sought to capture the experiences of living with solar thermal technologies for hot water. This situated and contextual approach demonstrates the complexity and messiness of energy demand [9], and shows how technical improvements cannot be understood in isolation from everyday domestic life [10]. In fact, householder's mention of solar thermal panels arose as part of wider discussions about delivering expectations related to hot water (e.g. plentiful, powerful, hot) through renovation. This highlights an opportunity to better bundle renewable energy advice and support at the time of amenity home improvements and by targeting new homeowners. Yet householder's dialogue also

suggested that 'expert' advice was not practical enough to inform renovation because it misses other considerations that are vital to householders, such as whether space for a hot water tank ruins plans of a walk-in-cupboard and how these changes affect water pressure in multiple bathrooms. Exploring how microgeneration technologies fit into 'normal' home life is therefore a useful gap to address in energy research and policy, and is our aim in this paper. Accordingly, we begin with a literature review (Section 2) which explores the nature of domestic microgeneration and solar thermal energy in the UK (2.1) in addition to work on energy prosumption and energy practices (2.2). In Section 3, we present our methodology followed in Section 4 by our results and analysis. Our conclusions and the policy implications of our study are presented in Section 5.

2. Linking energy prosumption and domestic practices

2.1. The nature of domestic microgeneration and solar thermal systems in the UK

The UK is committed to an 80% emissions reduction by 2050, and a target to achieve 15% of energy consumption from renewable sources by 2020 (from 1.5% in 2005) ([11]:5). Solar thermal panels are a relatively mature and well-established technology, and have been installed in 70 million homes worldwide (approximately 11% of these are for swimming pools, predominantly in the USA) [12]. They produce hot water, the consumption of which represents approximately 20% of household energy demand in the UK, and despite advances in

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efficiency, this has remained stable over the past forty years [13]. This study reports on broader considerations surrounding solar thermal panels, but this approach, and its findings, are of wider relevance to microgeneration research and renewable energy policy.

The UK renewables policy framework consists of three components: financial support for renewables; unlocking barriers to delivery; and developing emerging technologies ([11]:6). One element of this, was the 2014 Renewable Heat Incentive (RHI) for heating technologies, including solar thermal panels. The RHI replaces grants, the typical funding mechanism for heating microgeneration, and instead pays householders per unit of heat they produce (depending on the size of the system this is estimated to be annual payment of £195–£475 for 7 years) [14]. The RHI scheme operates in the same way as much more established schemes for electricity microgeneration (Feed-In-Tariffs (FITs)), which are widely recognized to be an effective mechanism for increasing uptake of technologies ([3,1]). The UK Government has also taken steps to ensure and regulate the quality of installers and installation [15], encouraging householders to only invest with installers certified with the Renewable Energy Consumer Codes (RECC) and Microgeneration Certification Scheme (MCS) as only these certified installers can access financial support schemes for householders (i.e. FITs and RHI) [16]. As yet, the RHI has not been trialed in any other country, nor has its effectiveness been the subject of much review or research (at the time of writing there are no peer-reviewed analyses) so it remains to be seen how successful it will be in the long term. However, with policy developments such as the RHI, and the pre-existing targets, it is clear that microgeneration is an energy policy priority. It is thus critical to better understand the broader domestic environs within which these installations are desired, installed and used, and to explore alternative approaches that may provide more sophisticated explanations for installations, in this case, of solar thermal panels.

2.2. Energy prosumption and practices

With the popularity of domestic microgeneration apparently growing, it seems that ever more households in the UK are opting out of, or supplementing, nationally supplied energy. Such households are simultaneously consuming and producing energy, and may be characterized as undertaking energy prosumption practices. The idea of energy prosumption acts to challenge the binary of production and consumption [17] and is a concept attracting increasingly more attention. Indeed, and whilst discussions about prosumption in other realms abound [17–22], work on energy prosumption is currently limited [10] and where it does exist, seldom captures ‘practical, collective, sequential, repetitive, and automatic aspects’ ([23]:283) critical to everyday household life. This is an important oversight, since such understandings can aid appreciation of why and how energy is demanded.

The desire for more sophisticated understandings of everyday household life is in part reflected by the practice ‘turn’ in the social sciences, whereby the ‘performative character of social life is foregrounded and privileged analytically’ ([24]:103), in order to overcome simplistic binaries of structure/agency, production/consumption, mainstream/alternative, immaterial/material (cf., [18]). Although many different forms of practice theory exist [23], they share an understanding that social action is where our focus should be, rather than that of the individual (i.e. the prosumer), or wider society/cultural ‘scripts’ [19,25]. Adopting a practice approach therefore allows us to show how ‘consumption and production are not dualistic opposites, but (are) co-present in and are organized by practices of everyday living’ ([19]:4). Hence, this approach is a move away from behavioural approaches, which, for example, treat householders as autonomous agents [22]. Importantly, a focus on practice allows us to move beyond thinking about energy per se and, rather, to think about what practices householder’s energy use enables (e.g. showering, watching TV, cooking), thereby enhancing understandings of why, how and when energy is demanded [8].

Given that very many household activities either create some demand for energy (cooking, cleaning or washing), or relate to other practices that do (entertaining or socializing), an analytical focus on the ‘doings’ of domestic activities seems not only relevant, but appropriate. Briefly, contributors to practice theory identify elements or components which, when taken together, constitute practices. Although the specific elements differ from theorist to theorist (see [26], for a helpful explanation of this in the context of energy, and also [27–29] for reflections on alternative ‘ingredients’ of practices), Social Practice Theory’s three elements: ‘materials’ (objects, tools and infrastructures), ‘meanings’ (cultural conventions, expectations and socially shared meanings) and ‘competencies’ (knowledge and embodied skills) [9] seems to have gained most traction in domestic energy literatures. In this paper we are therefore using the Social Practice Theory (SPT) approach to explore prosumption as the practice of choosing, installing and using a technology whilst recognising that energy prosumption is interconnected with other practices. For example, we conceive of microgeneration as itself being a form of prosumption, where households are no longer simply consumers of energy but also produce some, if not all, of the energy demanded by the household. Specifically, such prosumption is simultaneously a practice of its own as well as being part of and connected to other practices [30]. For instance, we regard the installation of microgeneration as a practice in its own right, where other activities related to solar thermal prosumption are considered part of more interconnected practices (cf. [29]) such as showering, laundry or decorating (each of which combine aspects of consumption and production such as consuming wallpaper/paints and producing a comfortable room). Accordingly in this paper we discuss both the practice of choosing and installing microgeneration but also the inter-connected practices related to this such as decorating, washing, showering, and so on.

By focusing on solar thermal technologies, we show how energy prosumption is taking place in homes and explore the potential implications this may have in terms of energy demand. With these ideas as a starting point, we focus not on the microgeneration technology, in this case solar thermal panels, but the competencies, materials and meanings which underlie the activity of producing and consuming hot water. This approach differs from the majority of literature on microgeneration technologies [4–7] that emphasizes financial and environmental considerations as the key determinants of uptake, largely ignoring the mundane context of everyday home life. The way in which these studies, often utilizing questionnaires and semi-structured interviews, ask questions and the types of answers they allow (i.e. in relation to specific barriers) [4–6], strongly increases the likelihood that such barriers will be identified as influential. Critique of the priming and sampling biases of this line of enquiry have been developed in sociological scholarship on energy saving improvements more generally (see BRI Special Issue on ‘Retrofitting owner-occupied housing’ 2014 and [31]) and we do not seek to repeat them here, although we return to such discussions in Section 4. Rather, we argue that we need to better understand the context of microgeneration installations, an area recognized as being under-explored [32,12], and we do so by analyzing householder’s unsolicited accounts on Mumsnet, a UK website.

3. Methodology: “talking ‘bout my generation”

Digital methods are an approach gaining popularity in the social sciences, in particular because when people post using a screen name or pseudonym, they are perhaps more likely to be open in the information they divulge. Yet despite online and virtual methods [33,34], digital methods [35] and netnography [36] being popular neologisms, they are seldom used in domestic energy or microgeneration research. We have used them in our work for this paper because we believe these online discussions are an extension of casual conversations, and more accurately reveal householders areas of interest and concern [37] than may be achieved in conventional research methods such as interviewing or focus groups.

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