GOVERNING ENERGY USE AT HOME: SMART METERS, GOVERNMENTALITY AND RESISTANCE

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3S Science, Society & Sustainability

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TRANSITIONS TO SUSTAINABILITY
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ABSTRACT

This paper examines attempts to reduce household energy consumption through the introduction of real time display monitors (RTDs) that enable householders to 'see' their energy use (and its associated carbon emissions) and thus take steps to reduce it. Drawing on repeat semi-structured interviews, conducted 12-months apart, with 10 householders participating in a 'Visible Energy Trial' in the East of England, the paper explores how RTDs attempt to rationalise and govern household routines in new ways, and sheds light on the ways in which they are integrated into, or rejected by, existing household relations and practices. Specifically, the paper shows how carbon dioxide appears to be a relatively weak metric or rationality of government among householders, seemingly unable to challenge entrenched household practices; how the monitors introduce new forms of surveillance and discipline to householder actions that, in turn, lead to new forms of cooperation, conflict and negotiation in householder relations; and also how the monitors are resisted by householders, often along gendered or generational lines, through appeals to longer-standing household ethics and aesthetics, and through a partial rejection of the territorialisation of climate change at the household level.

INTRODUCTION

This short paper outlines some initial thoughts about energy, climate change and governmentality emerging from a field trial of a range of Real Time Display (RTD) monitors that aim to help householders 'see' and thus to manage their everyday energy consumption. In December 2009, the UK government announced its intention to roll-out 'smart meters' to all UK homes by 2020. Each smart meter, they stated, will be accompanied by an RTD that "will provide consumers with real-time information on their electricity use to help them control consumption, save money and reduce emissions'' (DECC, 2009, 7). As well as facilitating the development of a 'smart grid' that is better able to accommodate decentralised forms of electricity generation, a core aim of this announcement was to overcome what Burgess and Nye (2008) term the 'double invisibility' of energy in everyday life. The argument, here, is that by providing householders with real time feedback on their energy consumption this will allow them to understand how much energy they use in the course of going about their daily routines, and thus help them to identify ways of saving energy (*cf.* Wilhite and Ling 1995). Despite the growing number of critics of this rather rationalist and linear model of behaviour change (e.g. Shove 2010), studies which have tested the model have shown it has some limited success, with feedback leading to overall savings of between 5 and 15% at least in the short term (e.g. Darby 2006). As Darby (2006) goes on to observe, however, such studies say nothing of *how* such savings are realised and, as such, they render the household something of a black box. What is needed, therefore, is a more detailed understanding of what happens when households are confronted with feedback on their energy consumption. To what extent does this encourage them to problematise existing habits and routines, or to introduce new forms of discipline and rationality to everyday practices, and to what extent are they able to act upon this to realise lasting savings?   Here, Foucault's concept of governmentality, with its interest in the 'how' of power and on the often quite quotidian rationalities and technologies of government (Miller and Rose 2008) is perhaps especially insightful.

CARBON GOVERNMENTALITY AND ENERGY PUBLICS

Amongst other things, governmentality studies focuses on the alignment and convergence of agendas between the State and its subjects by examining the techniques and tactics through which individual subjectivities are constantly made and remade to (try and) achieve particular ends (e.g. Dean 1999). In recent years, governmentality studies has focussed increasingly on environmental and sustainability problems, examining the ways in which 'the environment' has been made into a set of problems for which particular kinds of intervention and management are possible, desirable and even seemingly natural (e.g. Darier 1996; 1999; Rutherford 2007; Rutland and Aylett 2008). Within this general move towards understanding forms of eco-governmentality or environmentality (Agarwal 2005), several scholars have focussed specifically on the particular ways in which climate change is being understood and acted upon as a governable concern (e.g. Oels 2005; Lövbrand and Stripple 2006). In particular, Paterson and Stripple (2010) have very persuasively outlined how climate change, or more specifically carbon dioxide, has been individualised through a range of increasingly common techniques such as carbon footprinting, carbon offsetting, carbon dieting, carbon reduction action groups and

personal carbon allowances. Through the particular fields of visibility, technologies, forms of knowledge and identities employed in these governmental practices, Paterson and Stripple show how forms of carbon governmentality are being mobilised to create "self-regulating, carbon-conscious citizens" (2010, p.345).

In parallel with these moves, within the area of energy social science, a range of recent studies have turned their attention towards the kinds of 'energy public' envisaged within transitions to a low-carbon economy. In each case, the concern has been to move away from representations of passive energy consumers who simply respond to centralised concerns, and towards more active imaginaries of 'energy citizens' (Devine-Wright 2006). For example, Van Vliet *et al* (2005) identify 4 distinct consumer roles including the captive consumer, the customer consumer, the citizen consumer and the co-provider, and Walker and Cass (2007) outline identified no fewer than 10 distinct roles for 'the public' (as captive consumers, active customers, service users, financial investors, local beneficiaries, project protestors, project supporters, project participants, technology hosts and energy producers) in renewable energy futures.

Despite the general convergence of the energy and climate change agendas (Lovell *et al* 2009), these complementary concerns with carbon calculating individuals on the one hand, and energy citizens on the other, have not yet been systematically brought together. More significantly, however, in neither case have these rationalities, representations and imaginaries been actively examined for how they play out in real life situations. When and where, for example, do 'energy citizens' emerge, and to what extent can they make their voices heard in key decision arenas? Alternatively, and as will be the focus for the rest of this short paper, how does 'the conduct of carbon conduct' (Paterson and Stripple 2010, p.342) actually function as and amid the complexities of everyday life? Here, two of Foucault's observations about governmentality are worth remembering. First, Foucault observed that new power formations never completely replace pre-existing ones, but instead link-in and mesh together with them in ways which are themselves generative of new and alternative subjectivities (Foucault 1977). Second, and relatedly, Foucault observed that "there are no relations of power without resistances" (1980, p.142). In light of these observations, there is an apparent need to examine the 'messy actualities' (O'Malley *et al* 1997) of forms of energy and carbon governmentality.

THE VISIBLE ENERGY TRIAL

The rest of this paper seeks to examine these 'messy actualities' by drawing on repeat interviews with 10 householders participating in the 'Visible Energy Trial' in the East of England. Throughout 2009-2010, 275 households were recruited to trial a range of RTD monitors manufactured by a company called Green Energy Options (GEO) for a period of 12 months. Although a range of different monitors were trialled, each with different levels of technical sophistication, each monitor provided real time feedback to households on how much electricity they were using at any particular moment in time, as well as providing feedback on the amount of energy they had used so far that day (See figure 1). During the trial, 10 households were selected to take part in two semi-structured interviews, with the first interview conducted a few months after the trial had begun, and the second being conducted 12 months later. For further details of the trial, interested readers should consult Hargreaves (2010) and Hargreaves *et al* (2010).

The rest of this short paper focuses only on those parts of the interview data that are relevant for considering energy and carbon governmentality. Specifically, it highlights 3 themes that challenge the notion that a carbon governmentality is becoming increasingly common and powerful, at least at the household level. First, that carbon is in many ways a weak and relatively ineffective metric of governmental rationality. Second, that the focus on individual subjectivities neglects that individuals do not exist in a social vacuum. Third, that individuals can and do resist carbon governmentality in various ways.

Figure 1: GEO's real time display monitors (showing from left to right: the Solo; the Duet; the Trio)

CARBON AS A WEAK METRIC

The RTD monitors trialled in this study represent a key technology with which to spread and regularly to reinforce carbon as a rationality of government. Each of the monitors in the trial can provide instantaneous feedback to householders on how much carbon is being emitted through household electricity consumption at any moment in time. In this respect, the monitors attempt to overcome what Burgess and Nye (2008) describe as the 'double invisibility' of energy: that energy is both physically invisible and, because of current billing and payment systems, extremely difficult to connect to daily practices as they occur in real time. In so doing, the monitors theoretically allow householders to understand and problematise their household routines and practices in new ways and thus to take steps to intervene and reduce their emissions. Following Paterson and Stripple (2010), the monitors themselves represent the 'technical aspect' of carbon governmentality generating a new 'field of visibility' that makes the contribution of household practices to climate change instantly visible (and in full colour - see figure 1). By so doing, they introduce new forms of knowledge to the household (e.g. the kettle uses lots of energy; using the tumble drier is bad for the climate) and thus encourage the formation of new low-carbon identities (here, RTDs can potentially create any or all of the identities Paterson and Stripple identify).

Whilst, on the face of it, the RTDs used in this trial seem to provide a technical embodiment of carbon governmentality, interviews with householders suggested they were far from effective in achieving this. Most prominently, all but a few interviewees stated that they had set their

monitors to provide readings in pounds and pence, rather than in either carbon or kilowatt hours. When asked why, householders stated that understanding household energy use in terms of carbon was extremely confusing. Not only did householders not understand how much a kilo or a tonne of carbon actually was, they were also unable to grasp whether this was good or bad, and had nothing meaningful to compare it to. In one case, despite being trained as an atmospheric chemist and being able to inform his grandchildren that 'X kilos of carbon represents Y bags of flour', one interviewee was still unable to explain what difference 'Y bags of flour' actually makes to climatic change. For these reasons, the vast majority of interviewees had chosen to use the pounds and pence metric as this helped them to make sense of the information the RTDs provided.

By designing the monitors to provide £s and kilowatt hours readings in addition to carbon, the manufacturers of the displays might be interpreted to have pre-empted this apparent failure of carbon as a governmental rationality. A more interesting aspect of the RTDs appearance, however, was that they were specifically designed to resemble a car dashboard. For example, the 'speedometer' dial provided information on what was being used at any one moment in time, whilst the 'fuel tank' indicated how much the household had consumed by comparison to a pre-established household budget, and displayed a tick or a cross symbol depending on whether this budget was being met or exceeded in any 24 hour period. Not only does this represent another way in which the monitors sought to link-in with pre-existing and well-established forms of practice and the kinds of rationality that govern them, but during interviews householders regularly referred to this 'fuel tank' part of the display using financial metaphors. For example, getting a tick represented being 'in credit' and the fuel tank, generally let you know if you were 'in the red or the black' for the day.

These brief insights suggest that carbon represents a weak metric of governmental rationality that apparently fails to make sense to householders and thus to have any meaningful influence on household practices. Further, they show not only that the RTDs were designed to link-in with pre-existing governmental rationalities, but also that householders themselves actively meshed rationalities together in order to make sense of the feedback they were receiving. Further still, the frequency with which householders chose to use a financial, rather than carbon or energy metric, highlights the pervasiveness of neoliberal economic forms of rationality (posing a serious challenge if tackling climate change demands something different e.g Slocum 2004). In all, these observations raise interesting questions about the relationship between carbon, energy and financial forms of governmentality. All three forms seem to be able, at least in some respects, to borrow one another's metrics and rationalities. Does this mean that 'carbon calculating individuals' can live happily alongside/inside 'energy citizens' and rational utility maximisers? If not, at what point do these distinct identities begin to conflict and fragment? And with what consequences?

INDIVIDUAL SUBJECTS?

 The second core theme to emerge from the interviews suggests that a narrow focus on the 'carbon conscious individual', in studies of carbon governmentality, might be misplaced. With the exception of one single-person household, all interviewees were clear that even if they

themselves wished to save energy and carbon, they were limited in their ability to do so by those they shared their households with. Throughout the interviews, it was clear that the RTDs had generated new forms of both cooperation and conflict within households as the newly introduced carbon governmentality came into contact other household logics – such as the desire for a warm, comfortable, well-lit home and a convenient and no-hassle style of life. In some instances, the monitors had prompted householders to cooperate with one another to reduce unnecessary consumption and emissions. Indeed, one interviewee reported having weekly 'family meetings' in which the feedback on consumption from the previous week would be jointly discussed and plans made to realize savings. More often, however, interviewees reported mild forms of conflict as husbands, wives, sons and daughters were variously criticised for leaving the lights on or the windows open, or for failing to switch appliances off standby, for example.

Related to this point, a few interviewees reported that the monitors had allowed them to observe more closely how much energy other householders were using and had even, in some instances, provided new 'evidence' in apparently long-running household disputes about wasting energy. In this respect, and following Foucault (1977), RTDs can be seen to act as a kind of panopticon introducing a form of surveillance in which householders may be being observed at any moment in time but are unaware of such observation. Here, however, where the panopticon works by getting individuals to internalize their own punishment, in the case of the RTD monitors no such 'punishment' exists unless the individuals have first accepted that saving energy and carbon is a good thing whereas wasting them is a bad thing. In this study, and as the next section elaborates further, such an ethic of energy and carbon saving did not appear to have developed among most householders and, to the extent that it did exist, it demanded regular reminders from, and associated arguments with, the (usually lone) householder who had accepted the new carbon governmentality.

These observations suggest that a narrow focus on the way in which carbon governmentality modifies individual subjectivities may overestimate the extent to which such a governmentality has taken hold. Instead, the interviews suggest that even where individual subjectivities have apparently been modified, the practical effectiveness of such changes is limited by the social contexts in which they are situated, the other people and subjectivities that exist within those contexts, and the alternative forms of discipline and governmentality that swarm around within contemporary households (e.g. Donzelot 1979). In short, these observations suggest that a focus on 'My Space' (Paterson and Stripple 2010) will be incomplete as long as it continues to neglect 'Our Space'.

RESISTANCE

The final theme I will highlight relates to several occasions during the interviews in which householders actively resisted and rejected the carbon governmentality the RTDs were attempting to introduce. Importantly, this did not usually represent a wholesale rejection, but rather a resistance to carbon governmentality in relation to some aspects of daily practice whereas it may have been embraced more fully in relation to other practices. Specifically, I will highlight two forms of resistance to the RTDs. The first focuses on alternative household ethics

and aesthetics which the RTDs appeared to threaten. The second relates to apparent resistance to the territorialisation of climate change at the individual and household level, and the associated responsibilization that entailed.

Several interviewees, despite often stating that they used their RTD in various ways to help them save energy and reduce emissions, also highlighted areas of everyday life in which the RTD was not welcome. For example, one interviewee reported that the one thing she would not accept was the RTD telling her to stop using a pair of Venetian lamps she had in her lounge. She insisted that she wanted a cosy and well-lit lounge and that she would not accept the 'guilt' that the RTD made her feel over using these lamps because, as she put it: 'life is for living'. In another instance, a householder reported an ongoing battle with his wife in which he was constantly trying to reduce emissions by lowering the thermostat, whereas his wife was resisting this 'threat' to her 'comfort levels'. Precisely which aspects of daily life the RTDs were rejected from varied enormously between different householders including, for example, kettles, tumble driers, fishtanks, computers, bread makers etc. The crucial point, however, was that different households, each with distinct and well-established ethics, aesthetics and moral economies (Silverstone *et al* 1992) resisted the RTDs in different and often quite specific areas even if they embraced it in others. Where, in previous examples, carbon governmentality appeared to have linked-in with and come to work alongside other forms of governmentality, in these instances the link was not being made leaving room for spaces of resistance.

The second example of this theme represents a more thoroughgoing rejection of the RTDs silent yet insistent commands to save energy and reduce emissions. Here, several householders argued that they had already 'done their bit', and that their 'bit' was actually pretty small by comparison to what others, such as governments, local authorities, big businesses etc, might make themselves. This exhibition of what Macnaghten *et al* (1995) call 'relational agency' is not new (see also Eden 1993 on the concept of 'actionable responsibility') but, to my knowledge, has not previously been interpreted as a form of resistance to the territorialisation (Lövbrand and Stripple 2006) of climate and environmental change at the household level, an interpretation that poses probing questions about the potential limits to governance beyond the state.

REFLECTIONS

This paper has argued that RTD monitors might be understood and researched as a key technical component in the attempt to spread a form of carbon governmentality to households. Specifically, taking Paterson and Stripple's (2010) outline of the different forms of governmental rationality involved in carbon governmentality as its point of departure, it has sought to challenge the lazy assumption that new governmental rationalities and technologies spread easily, uniformly and unchallenged. By drawing on interview data with householders involved in a trial of a range of RTD monitors it has sought to examine the 'messy actualities' of carbon governmentality at the household level and, in so doing, has outlined 3 themes worthy of further exploration.

First, there is a need for more research to examine how carbon governmentalities link-in, mesh together and get tangled up with other pre-existing forms of governmentality at different scales.

Second, there is a need to examine how the (re)formation of individual subjectivities through carbon governmentality plays in with pre-existing social relations and networks. Third, there is a need to examine forms of resistance to carbon governmentality in different times and places. Particularly because, as Darier (1999) suggests, such moments and spaces of failure, struggle and resistance may contain the seeds of future forms of governmentality:

> "Because instances of normalization and resistance constantly interact in a dynamic manner, reversals occur. Yesterdays' resistance can become today's normalization, which in turn can become the conditions for tomorrow's resistance and/or normalization." (Darier 1999, p.18)

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