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Peak electricity demand and social practice theories: Reframing the role of change agents in the energy sector

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ABSTRACT

Demand managers currently draw on a limited range of psychology and economic theories in order to shift and shed peak electricity demand. These theories place individual consumers and their attitudes, behaviours and choices at the centre of the problem. This paper reframes the issue of peak electricity demand using theories of social practices, contending that the 'problem' is one of transforming, technologically-mediated social practices. It reflects on how this body of theory repositions and refocuses the roles and practices of professions charged with the responsibility and agency for affecting and managing energy demand. The paper identifies three areas where demand managers could refocus their attention: (i) enabling co-management relationships with consumers; (ii) working beyond their siloed roles with a broader range of human and non-human actors; and (iii) promoting new practice 'needs' and expectations. It concludes by critically reflecting on the limited agency attributed to 'change agents' such as demand managers in dominant understandings of change. Instead, the paper proposes the need to identify and establish a new group of change agents who are actively but often unwittingly involved in reconfiguring the elements of problematic peaky practices.

1. Introduction

Peak electricity demand is a pressing international energy policy concern, causing widespread blackouts and increasing the cost of electricity for all consumers. In Australia alone, billions of dollars in investment are being used to upgrade electricity distribution and transmission infrastructure, and build generation plants to provide power during periods of peak demand. Despite these efforts (and in some cases because of them), there are growing concerns about the frequency of blackouts, particularly on hot summer days when residential air-conditioning demand adds disproportionately to peak loads (Wilkenfeld, 2004). Consequently, a range of demand management strategies have emerged, such as time-of-use pricing and consumption feedback, to educate and incentivise consumers to redistribute or reduce peak demand.

The primary purpose of this conceptual paper is not to contribute towards existing debates about where demand management programs and peak electricity investment would be best targeted, but rather to reframe the issue entirely. The focus is on how the 'problem' of peak electricity demand and the demand management 'solutions' it generates emerge from a particular construction of reality that places humans and their minds at the forefront of social order. This humanist perspective continues to dominate into the twenty-first century (Schatzki, 2001), and is the foundation for the production of knowledge, policy and programs intended to achieve social and environmental transformation in an era of climate change and resource uncertainty (Shove, 2010). In the context of peak electricity demand, this construction is most evident in policies and programs which attempt to 'shift' and 'shed' consumer demand.

This paper departs from this dominant understanding of social order and change, instead drawing on social practice theories as 'a distinct social ontology', whereby 'the social is a field of embodied, materially interwoven practices' (Schatzki, 2001: 3). Social practice theories depart from accounts that privilege social totality (social norms), institutions or systems (structure), cultural symbols and meanings (symbolism), or attitudes, behaviours and choices. They also overcome common dualisms which manifest themselves in the energy and resource sectors, such as supply and demand, consumption and production, and behaviour and technology. In this paper, I demonstrate how they can reframe the issue of peak electricity demand as one of changing and shifting technologically-mediated social practices, resulting in different foci for demand managers assigned the role of affecting change.

This is not primarily a debate or discussion about theory, but about the ways in which theory 'works on' policy and manifests itself in energy strategy. While theories can only ever be abstractions and constructions of reality, they can and do have quite profound effects on it. As Shove (2011: 264; emphasis in original) argues, the value of alternative theories of social change is to

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'generate *different* definitions of the problem', not to provide a more 'holistic' perspective or to solve *existing* policy (and resource management) problems. Alternative perspectives are particularly necessary for the energy sector, where a unified body of theory, research and practice has served to construct and reinforce clear knowledge, processes and policies for the task of managing demand.

In addition to recasting the peak demand problem, this paper aims to identify what this reframing might *mean* for the professions charged with the responsibility and agency for steering demand, and how it might reorient the practice of doing and being a 'change agent' in the energy sector. Traditional change agents are most clearly exemplified in their roles as demand managers, where their primary task is to deploy a range of instruments such as pricing incentives and disincentives, educational and informational strategies (e.g., consumption feedback), and technological solutions intended to shift or shed energy demand. For the purposes of this paper I use the term 'demand manager' broadly to refer to a range of professions, such as load managers, consumer and customer relations teams, smart metering program managers, behaviour change practitioners, energy efficiency advisors, and network pricing managers. While not all of these professions might identify themselves as demand managers, they are variously involved in attempting to steer, redirect or intervene in consumer demand through a range of programs, incentives and technological intermediaries that they deliver and/or promote.

I begin by examining the self-reinforcing demand management paradigm and how it is employed to understand and frame energy problems (Section 2), before presenting social practice theories as an alternative perspective (Section 3). In Section 4 I discuss the ways in which social practice theories potentially reposition the problem of peak electricity demand and the role of demand managers, before identifying three different foci for these professions (Section 5). Section 6 attends to the different ways in which agency is assigned and agents identified between these different understandings of people and their demand, and what this means for who or what can be a considered a change agent. I argue for the establishment and identification of a new breed of change agents who are actively but often unwittingly involved in reconfiguring the elements of problematic 'peaky practices'. However, I warn that assigning certain professions (but not others) with the agency to affect social change may be misleading and unhelpful in achieving it.

2. The supply–demand divide: a self-reinforcing paradigm

In the energy sector, the dominant paradigm is one where supply is split from demand, with technological efficiency on one side and behavioural improvements on the other. Consumers are framed as rational, self-interested and autonomous agents, whereas technology is viewed as 'an impartial, instrumental tool in a "win–win" scenario that couples economic growth with environmental improvement' (Hobson, 2006: p. 319). This divided view encourages a two-tiered approach to energy management problems that prioritise separate supply-side and demand-side solutions.

In the case of peak electricity demand, focusing on the supply-side by upgrading electricity infrastructure and generation capacity is often viewed as economically inefficient investment. In Australia, for example, this peak capacity is only required for 1–2 per cent of year (ETSA, 2007) and causes widespread blackouts on hot summer days, leaving householders vulnerable to the effects of heat (Maller and Strengers, 2011; Strengers and Maller, 2011). While a range of household appliances are implicated in peaky practices, such as televisions, heaters, home computers, refrigerators, pool pumps, washing machines and dishwashers (Pears, 2004), the air-conditioner has attracted particular attention as a 'culprit' appliance, primarily as a result of its rapid diffusion and increasing penetration (DEWHA, 2008). Similar scenarios are playing out internationally, focusing demand managers' attention on air-conditioning (and other peak) load during peak periods (Herter, 2007; Strengers, 2010a).

Popular demand-side solutions include variable pricing regimes, consumption feedback and 'direct load control' (the remote control of appliances with a high load during peak times). These strategies are often facilitated through government mandates for smart metering (Darby, 2010). Additionally, governments, non-government organisations and energy utilities employ a range of behavioural strategies to curb demand, such as informative websites and books about how to save energy, and educational programs and campaigns designed to assist people in making more resource-efficient decisions and investments about their consumption.

To undertake these tasks, demand managers draw on a unified collection of human-centred psychological and economic theories, which Shove (2010) has termed the 'Attitudes, Behaviour, Choice' (ABC) model. While Shove originally posited and critiqued the ABC model as the foundation for strategies designed to encourage energy conservation and reduce greenhouse gas emissions, it is equally applicable to the other key objective of demand management, which is to shift demand to non-peak times of the day. When load shifting is the primary aim, the focus of the ABC model is expanded to include the transfer of demand management skills to energy consumers. Householders are expected to transform into *micro resource-managers* (Strengers, 2011b), and are represented as '*Mini-Me*' versions of their utility providers, who must make similar resource management decisions at the household level (Sofoulis, 2011). The aim is to encourage consumers to make autonomous and cost-reflective decisions about the *scheduling* of their consumption (in accordance with their attitudes, behaviours and choices) through incentives and disincentives such as variable pricing tariffs. To highlight this additional emphasis of demand management, I graft a 'D' for 'Demand' onto Shove's ABC model for the purposes of this paper.

This ABCD model pervades energy policy and management, and is reinforced by the plethora of consumer- and demand-oriented opportunities open to researchers, industry and community groups to respond to discussion documents and granting schemes. For example, an Australian Energy Market Commission review with the telling title 'Power of choice – giving consumers options in the way they use electricity' (AEMC, 2011), asked for responses to a series of pre-defined questions aimed at identifying consumer 'drivers', 'choices' and information needs. Here a series of epistemological and ontological assumptions about how humans understand their world, act within it, acquire new knowledge, and instigate change are adopted from the outset. The emphasis is on changing and responding to what is going on in the minds of individual consumers.

Similarly, a recent surge of international reports focused on the 'consumer domain' (CEA, 2011), 'consumer impacts' (NERA, 2008), 'maximizing consumer benefits' (SGA, 2011), and 'the new energy consumer' (Accenture, 2011; Zpryme, 2011), reinforce and sustain the ABCD model by focusing on the human mind and its attitudes, opinions, drivers, values and choices. My intention is not to suggest that this entire collection of theories is completely wrong or invalid, but rather to acknowledge it as such, that is, as a unified compilation of concepts that dominates and pervades energy management and policy at the exclusion of others (Shove, 2010).

There is now a well-established critique of this dominant understanding of demand including its limitations in achieving