Invisible energy policies: A new agenda for energy demand reduction

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A B S T R A C T

This article makes the case for a new and ambitious research and governance agenda for energy demand reduction. It argues that existing 'demand-side' approaches focused on promoting technological efficiency and informed individual consumption are unlikely to be adequate to achieving future carbon emissions reduction goals; it points out that very little attention has so far been paid to the impacts of non-energy policies on energy demand; and it submits that a much fuller integration of energy demand questions into policy is required. It advances a general framework, supported by illustrative examples, for understanding the impacts of 'non-energy' policies on energy demand. It reflects on why these connections have been so little explored and addressed within energy research and policy. And it argues that, for all their current 'invisibility', there is nonetheless scope for increasing the visibility of, and in effect 'mainstreaming', energy demand reduction objectives within other policy areas. Researchers and policymakers, we contend, need to develop better understandings of how energy demand might be made governable, and how non-energy policies might be revised, alone and in combination, to help steer long-term changes in energy demand.

1. Introduction

How is energy demand affected … when planners project a 'doubling of flight demand by 2050′(Marsden, 2013), thereby naturalising the need for airport expansion? When energy managers are expected to formulate energy efficiency strategies, but have no role in institutional planning? When free schools are established? When labour markets are liberalised? When development agencies and international organisations subsidise road-building and marginal agriculture? When university promotion committees treat attendance at international conferences as markers of research performance? When hospital trusts are merged and health services centralised? When trade agreements are negotiated? When high-speed broadband is rolled out nationwide? When taxation rates are changed? When pensions are indexed to inflation? When Britain exits from the European Union …

Not much unites this disparate list of policy objectives and processes, but one thing that does is that they all have consequences for energy demand. Some mainly affect the timing of energy demand, some where demand occurs. Some have indirect effects, shaping the many conditions and contexts in which energy-demanding activities happen; others are of direct consequence for specific areas of daily life. Many, but not all, are likely to entail increases in energy consumption. Whichever way, these policies all have wide-ranging, if complex, repercussions for energy demand.

Given this, one might expect such topics to be of central concern to energy research and policy. But they are not. Instead and in general, academic and policy discourse on low-carbon energy transitions focuses on two things: energy supply decarbonisation, including its socio-technical, institutional and geographical dimensions (Cowell, 2017; Lockwood et al., 2017); and increasing the efficiency of energy use (Kern et al., 2017; Mallaburn and Eyre, 2014; Rosenow et al., 2016). The result is something of a divide in research and policy on energy demand. On the one hand, so-called 'demand-side' strategies aspire to reduce consumption through technological efficiency or by persuading individual users to consume less, especially at times of peak demand (through price signals, smart metering, and so on) (Torriti, 2015). However, more fundamental questions about the changing array of 'services' that energy makes possible, about the amount of energy 'needed' in society, or about the role of policy in constituting these 'needs', are not usually asked (Shove and Walker, 2014). And on the other, energy demand reduction is rarely a priority in policy areas like health, welfare or defence, all of which have core priorities of their own. Caught between these dominant approaches, the roles played by 'non-energy policies', as we label them, in sustaining and increasing demand – and the roles they might conceivably play in transforming it – remain largely invisible. Although arguably vital for any effective

response to climate change, there are no concerted, cross-cutting policy drives to influence long-term patterns of energy consumption or reduce demand as constituted by and through policy.

This paper seeks to identify and theorise this lacuna, and through this to encourage new ways of thinking about how energy demand might be systematically reduced. Our arguments are threefold. The first is that unless one assumes it will be possible to radically reduce carbon emissions and meet all future global energy 'needs', even if these double or triple, then strategies will be required to reduce energy demands – at least in the global North; and that existing approaches to energy demand are unlikely to be adequate. The second is that energy demand – which is an outcome of what people and their machines do in their homes, at work, in leisure time, and in moving around – is powerfully shaped by, among other things, a wide range of policy priorities and processes, some of which are directly to do with energy and its consumption ('energy policies') but most of which are not ('non-energy policies'). Third and following from these two points, we contend that meeting carbon targets depends on extending the remits of 'energy policy' and 'energy research' to include the constitution and transformation of demand by 'non-energy policies'; and on the invention and mainstreaming of demand reduction agendas at multiple policy sites and scales. As outlined below, this calls for a step change in how energy demand is understood and rendered visible, and how policy is mobilised towards this end.

In developing these arguments, we build upon recent research on non-energy policy, plus broad engagement with policymakers, managers and campaigners across a range of sectors, sites and scales. This recent work has included: a scoping review of research on non-energy policy impacts on the energy system (Cox et al., 2016); primary research on energy demand within specific sectors, including higher education, health, and welfare (considered below); and discussions with the UK Department of Business, Energy and Industrial Strategy (BEIS), and with researchers and practitioners working in multiple non-energy areas (DEMAND, 2017). Theoretically, our arguments build principally on social practice theory-informed accounts of energy consumption (Shove and Spurling, 2013; Shove and Walker, 2014), but are also indebted to Foucauldian understandings of governance (Bache and Flinders, 2004; Dean, 2010; Foucault, 1980; Piattoni, 2010) and analyses of the governance dimensions of environmental and energy transitions (Bulkeley et al., 2014; Jordan, 2008; Meadowcroft, 2009). Empirically, most of our examples are from the UK but are relevant to other national or at least high income countries.

Our case unfolds as follows. We begin by justifying the first argument, namely that existing 'demand-side' approaches fail to address the fundamental constitution of energy demand (Section 2), and by showing that, as a corollary, little attention has been paid to the impacts of non-energy policies on energy demand (Section 3). We then move from critique to exposition, advancing an alternative approach which takes fundamental questions of demand and policy to heart. We offer a set of propositions with examples to show how non-energy policy objectives (Section 4) and non-energy policy processes (Section 5) influence energy demand, and review some reasons why these have been so invisible within research and policy (Section 6). We argue that at least some of these barriers are surmountable, and, via an analysis of precedents from other policy fields, suggest that there is scope for mainstreaming and increasing the visibility of energy demand concerns within other policy areas (Section 7). We conclude by calling for researchers and policymakers to develop better understandings of how energy demand might be made governable, and how non-energy policies might be revised to help steer long-term changes in energy demand.

First, several words on terminology and the scope of our argument. In what follows we describe all policy objectives and processes which are not explicitly formulated with energy demand in mind as 'non-energy policies'. By contrast, we use the word 'invisible' to refer to non-energy policies which have unacknowledged, or insufficiently

acknowledged, impacts on energy demand. We deploy these phrases whilst simultaneously being aware that they are binary in framing, and recognising that, in actuality, the boundaries between the 'visible' and 'invisible', and between 'energy' and 'non-energy', are always complicated and blurred. 'Visibility' is always a matter of degree and relative (a local energy manager will likely be more aware than her superiors of the potential repercussions of a new institutional strategy for energy demand); moreover, the notion of 'invisibility' does not capture all of the reasons why energy demand receives little attention within non-energy policymaking, as discussed in Section 6. As for 'non-energy policies', we acknowledge that this is a residual and historically contingent category, referring to policies which are not currently – or not yet – generally considered under the rubric of 'energy policy'. Indeed, we view the energy policy / non-energy policy binary as a function of the low visibility of, and low status accorded to, energy demand concerns across most policy worlds. In this sense, invisibility is not merely a characteristic of some non-energy policies, but is their defining and constitutive feature.

Last, a few words on what we do not argue. There is increasing interest in the energy embodied in goods and services, and some think of this energy and its environmental impacts as 'invisible' (Friedemann, 2016; Shui and Harriss, 2006). But this is not how we use the term: our concern is not with the general invisibility of energy, or specific types of energy, but with the invisibility of energy demand within policy, and the invisible effects of policies on energy demand. We also do not explore non-energy impacts of energy policy, for example public health benefits of vehicle emissions regulations or better-insulated homes (Mills and Rosenfeld, 1996). While this issue is sometimes overlooked, it is not nearly as under-researched as the role of non-energy policy in constituting demand (Cox et al., 2016).

2. Beyond efficiency and choice

It is widely accepted that soaring energy demand is a problem, and that reductions in it are vital, if dangerous climate change is to be averted. 'Soaring demand' is identified even by mainstream liberal outlets such as The Economist (2018) as a key factor in the slow implementation of the Paris accords. In parallel, demand reduction is central to many national carbon plans. The UK Government's Carbon Plan explicitly states that '[r]educing our demand for energy is the cheapest way of cutting emissions, and will also benefit consumers and our economy' (HM Government, 2011: 36). Such statements have informed ambitious demand reduction targets: Germany's 2050 Energiewende objective, for instance, is to reduce primary energy consumption by 50% on 2008 levels (Bundesministerium für Umwelt Naturschutz Bau und Reaktorsicherheit, 2013). In practice such goals have translated into two main types of strategy: regulation to increase the energy efficiency of buildings, vehicles and technologies; and the adoption of 'behaviour change' initiatives to 'nudge' people to make better use of energy, whether through carbon and energy taxes, or through the provision of fine-grained energy consumption data (Department for Business Energy and Industrial Strategy, 2018a).

The problem is that despite being positioned as 'demand-side' responses, such approaches take existing interpretations of energy need for granted. More efficient cars and household appliances are expected to deliver the same level of service as the less efficient models they replace, and efficiency programmes consequently reproduce rather than challenge ideas about the functions and needs these goods are expected to meet (Shove, 2017a). Behaviour change initiatives such as the UK's smart metering programme focus on informing individual consumer choice, and thus overlook the institutionalised dynamics of energy-demanding practices. Likewise, while carbon and energy taxes are designed to reduce demand, and while they have a role to play in modifying responses and perhaps adjusting priorities, there are limits to how much they might do so given the classically 'inelastic' character of energy demand (Salari and Javid, 2016; Belke et al., 2011). Such