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Postscript: can energy researchers and policy makers change their spots?

Book or Report Section

Accepted Version

Shove, E., Rinkinen, J. and Torriti, J. ORCID: https://orcid.org/0000-0003-0569-039X (2019) Postscript: can energy researchers and policy makers change their spots? In: Rinkinen, J., Shove, E. and Torriti, J. ORCID: https://orcid.org/0000-0003-0569-039X (eds.) Energy Fables Challenging Ideas in the Energy Sector. Routledge. ISBN 9780367027797 Available at https://centaur.reading.ac.uk/81513/

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Publisher: Routledge

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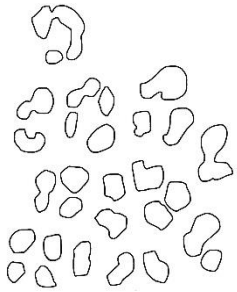
13 Postscript: Can energy researchers and policy makers change their spots?

Elizabeth Shove, Jenny Rinkinen and Jacopo Torriti

One of Rudyard Kipling's 'Just so' stories is about how the leopard got his spots. Can energy researchers and policy makers change their spots and work with different terms and concepts?



Introduction

Fables are short stories, typically with animals as characters, conveying a moral. When widely told and regularly repeated they become taken-for-granted truths – normative guides that steer action. In reviewing some of the fables that populate the energy sector, the essays in this collection interrogate recurrent themes and established narratives. They do so at a moment when the field is in flux. The scale of what is involved in meeting carbon reduction targets is gradually becoming apparent. The supply mix is changing with the introduction of renewable sources of energy and with the electrification of services such as heating and transport. Smart meters are generating more data than has ever been available, and there is renewed interest in issues of flexibility and timing as these affect the balancing of supply and demand. Questions about when energy is used raise others about what it is used for, and about how energy-demanding practices vary and change. Meanwhile, dominant metaphors and metrics remain rooted in an era of seemingly endless power, and in ideologies of individual consumer choice, market competition and resource economics.

One reason for writing this book is to address this tension: to revisit the terms in which energy is known and understood and to extend and refresh the range of concepts and approaches in play. In questioning aspects of received wisdom and introducing new ideas, we are interested in reconfiguring problems and identifying new opportunities for significant reductions in carbon emissions. We have suggestions to make, but these do not add up to a list of immediate

prescriptions for energy policy, not as it is currently formulated. Instead, and as detailed below, our contribution is to reveal the blind spots associated with current approaches, and to show how these might be overcome. In the next section we take stock of three recurrent themes – the representation of energy, the 'making' of energy demand, and the relations between technology and practice. This sets the scene for the final part of the book in which we reflect on the work that energy fables do in policy and practice.

In general terms, all fables simplify, and all forms of simplification have strings attached, in the sense that they reproduce certain perspectives and positions. The dominant discourses we consider in this collection are no exception. Since languages and concepts are 'performative' – meaning that they have effect on what people do – it should come as no surprise to find that the terms we discuss are enmeshed in a wider landscape of policy and practice. In this context, it would be naïve to expect researchers and policy makers to simply 'change their spots' or to adopt significantly new approaches any time soon.

It is equally naïve to take fables entirely at face value, or to suppose that research and policy making are of a piece. Behind the scenes, calculations of efficiency and of rebound reproduce a myriad of social and political judgements about wellbeing, service and normality. Similarly – but again invisibly – discussions of the trilemma embody and also disguise profoundly important assumptions about the nature of energy demand. Our further ambition, in this postscript and in the book as a whole, is to reveal these normally hidden aspects, and to draw attention to the ambiguous and sometimes contested settings in which they have effect.

On both counts – that is, in revisiting energy-related vocabularies and in revealing taken for granted truths – our aim is to prompt people involved in the energy sector to think again about the terms and concepts they use, the assumptions on which these depend and the actions that follow. In working through this book readers will come to their own conclusions about the issues we raise, and about the potential for developing a new generation of ideas and terms, consistent with the challenges that lie ahead. In bringing this book to a close we offer our own thoughts on the themes we have raised, and the implications these have for a new 'landscape' of energy-related research and policy.

Themes and implications

Each of the fables we have discussed reproduce different aspects of received wisdom. We now draw some of these threads together. Rather than itemising the policy implications of our insights and critiques, one at a time, we revisit three cross-cutting themes, starting with the terms in which energy is represented, measured, managed and known.

How energy is represented and known

Various fables (elasticity, efficiency, rebound, the trilemma, low hanging fruit) treat energy as a singular resource and as something that can be quantified in terms like million tonnes of oil equivalent or kWh. It is easy to forget how important this is for business-as-usual in the energy sector. Being able to calculate and compare units of energy is a necessary precursor for organising markets across different fuels and different types of energy generation, for discussions of efficiency (more service for the same units of energy), and for estimating price elasticity (willingness to pay for units of energy). If they are to fulfil this role, useful representations depend on abstracting energy from specific and situated practices of production, distribution and use. This is a necessarily selective process. For example, measuring the number of kWh associated with cooking, washing or cooling flattens out potentially important questions about how and when these different activities are done, how they interact and how they change over time. Put simply, different metrics enable certain discussions and lines of enquiry (e.g. appliance efficiency) but make others more difficult (e.g. shifting routines, new practices). They also influence the types of explanation that follow. Because current methods and measures treat energy as a generic resource they tend to obscure the *different* dynamics that underpin such diverse 'end uses' as heating, computing or laundering. Instead, fluctuations in demand are attributed to generic 'laws of the market', or to price and consumer choice rather than to infrastructural arrangements or institutional and collective interpretations of normality and need.

What are the policy implications of these observations? Are there ways of representing energy demand not in the abstract, but as part of what people do, and if so what new agendas might such approaches open up?

There are precedents that illustrate the value of working with different terms and descriptions. For example, the 'societal synchronisation index' (Torriti et al., 2015) captures the extent to which similar energy-intensive practices are done at the same time in any one society. In bringing issues of timing and demand together, it provides a distinctive method of characterising and measuring flexibility and the potential to reduce peak load.

Other techniques have been used to show how energy services change over time. While the rise in indoor temperatures in UK homes is well documented (Palmer and Cooper, 2013), more subtle social historical research demonstrates that meanings of comfort (and of activity, clothing, seasonality) have shifted alongside and as part of these developments (Shove, 2003; Humphreys, Nicol and Roaf, 2011; Kuijer and Watson, 2017; Trentmann and Carlsson-Hyslop, 2017). There is no standardised measure of how expectations and conventions evolve and no yardstick with which to evaluate the part that policy makers play in these processes. However, studies like these have the very important effect of revealing the extent to which energy demands and forms of energy supply are woven into the details of everyday life, into decisions about fuels and infrastructural investment and into the policies and strategies of local and central governments alike.

There is clearly more to be done but these few examples suggest that it *is* possible to describe and represent normally 'hidden' aspects of the energy system. Looking ahead, methodological innovations of this kind are vital if matters of timing, synchronisation and demand are to become established and legitimate topics of negotiation and debate.

How energy demand is made and not simply met

Many energy-related fables (energy services, energy efficiency, keeping the lights on, the energy trilemma) take demand for granted. For example, discussions about the 'trilemma' are in essence

discussions about how to handle tensions between energy security, affordability and carbon – but not about how much energy is required or for what purpose. In some cases, questions of demand are marginalised because they are thought to be matters of consumer choice, and as such, 'off limits' for policy makers and researchers alike. One consequence is that responses and strategies are developed and evaluated as if demand was simply 'there'.

We argue that this is misleading and counterproductive on two counts. First, and most obviously, present ways of life are unlikely to remain the same forever, meaning that future patterns of demand are unlikely to match those with which we are familiar with today. Second, and more important, how demands develop is, in no small measure, influenced by past and present policies, infrastructures and technologies. As is often said in transport studies, demand is 'derived' from other activities that are shaped by non-energy policies, including policies on housing, education, health and so forth. From this point of view, policy makers and researchers are *always* involved in constituting future demand, whether they are aware of it or not.

Seeing and perhaps redirecting these forms of policy influence calls for a more transparent approach to dealing with demand and for articulating assumptions that are 'baked' into energy modelling, into related policies, and into current programmes of technological research and development. As already explained the unquestioning commitment to 'keeping the lights on' stands for a broader, also unquestioning commitment to meeting present and future demands, whatever those might be.

In short, there is scope for much more adventurous and much more challenging policy making informed by debates about what substantially less 'demanding' ways of life might be like and about the kinds of material and institutional arrangements on which these might depend. Building on these ideas, there is a related need to link energy and non-energy policies and to actively use the latter to reduce demand and/or influence the timing and location of energy consumption. This is not a novel idea, but if such suggestions are to take hold it will be vital to recognise that demand is not fixed: it is open to negotiation, and is continually on the move. Developing this agenda depends on thinking again about how technologies and practices shape each other.

How technologies and practices shape each other

It is obvious that energy provision, distribution and use are mediated by technology. What is disturbing is that discussions of smart technologies, flexibility, energy demand, energy services, and energy efficiency generally take the 'functions' of appliances and infrastructures for granted. For example, more efficient heating or lighting systems are expected to take the place of those they replace, and to do so without disrupting established conventions of comfort. This is consistent with the tendency to distinguish between 'technologies' and 'users' and to focus on methods of persuading people to 'take up' or adopt innovative solutions.

It is now widely recognised that energy systems are 'sociotechnical'. However, there are different interpretations of what this means. Some authors use the term when describing the social and institutional shaping of transition pathways (Geels and Schot, 2007) or when itemising social factors that govern the uptake of lower carbon technologies. Others refer 'sociotechnical' systems in order to make the simple point that people are involved - for instance, in using and adapting buildings and appliances (Chiu et al., 2014). Although all take note of social processes, analyses like these generally overlook the extent to which technologies are implicated in the conduct of daily life, and in defining the activities of which they are themselves an integral part.

The contributors to this collection contend that technologies are social in a much more profound sense. In becoming 'configurations that work' (Rip and Kemp, 1998) appliances and infrastructures are integrated into, and constitutive of the social practices of which societies are made. This way of thinking has important policy implications. For example, instead of figuring out how to seed a low carbon transition by promoting a suite of technological solutions, the more subtle challenge is that of understanding how material arrangements enable and constrain different complexes of social practice and what these mean for the resource and energy demands that follow. Some might worry that this is a step too far for energy policy makers, especially given the 'siloed' demarcation of expertise, and of related roles, responsibilities and remits. However, it is important to recognise that whether they are aware of it or not governments and businesses are *inescapably* involved in defining what count as 'normal' standards and ways of living. Acknowledging that

policy is part of and not outside these dynamics is a precondition for identifying, for better understanding and for intervening in the trajectories and processes involved.

Moving in this direction depends on moving away from generic models of energy demand, and towards more historically and culturally precise accounts of how specific energy-demanding practices come to be as they are, and how they are in any case changing. Different languages are needed to represent these processes, and to describe how energy-demanding practices emerge and disappear, and how they circulate and combine (Hui, Schatzki and Shove, 2017).

The terms and phrases discussed in this book reproduce 'received wisdom' in the energy field, and in so doing work together to sustain and reproduce a body of ideas about what is normal and about what drives change. The result is a dominant paradigm that is increasingly out of step with the challenges now facing the energy sector. On the face of it, this situation calls for new approaches and ideas – perhaps along the lines suggested above. However, this supposes that policy makers and researchers can simply 'change their spots'.

Can energy researchers and policy makers change their spots?

Schools of thought, and the fables they give rise to, do not emerge by chance. Instead, 'spots' – by which we mean conceptual frameworks, methodologies and styles of analysis and problem framing – are anchored in professional and institutional identities and in disciplinary traditions. In practice, this means that the theoretical foundations of energy research and policy are unlikely to be overhauled any time soon. On the other hand, policy and research are not always of a piece. As a result, competing and sometimes contradictory positions *already* exist.

For policies to have effect, they have to enter and become part of the flux of what different people do. In other words, they have to become embedded in settings that have quite specific histories and contexts. Making and implementing policy is thus a pragmatic business, and one that happens in real time. Ironically, these complexities are ironed out of policy-oriented research much of which takes place within what Lutzenhiser describes as a 'looking glass world' – a parallel

universe populated by generic methods of modelling and economic analysis, largely devoid of history, and stripped of 'extraneous' and potentially complicating factors (Lutzenhiser, 2014).

It is in these decidedly ambivalent settings that the fables we have discussed are reproduced, and in which they have effect. In many situations, concepts of efficiency, or elasticity along with ideas about low hanging fruit and the promises of smart technologies inform responses to seemingly real problems. However, there are other instances in which these terms and concepts are known to be useful (perhaps necessary) fictions: they help organise research and policy, and they are part of constituting and not just responding to challenges within the energy sector. If we were to simply offer alternative and potentially better or more convincing narratives we would be in danger of taking existing discourses and related method and problems at face value. To avoid this trap, we need to consider the work that fables do in organising and simplifying policy contexts that are in fact never that simple. This approach puts the positions and arguments we have discussed in a different light.

The language of energy efficiency illustrates this complexity. On the surface, proponents of energy efficiency are devoted to the task of delivering the same or more service but with less energy. At first sight, this means that the pursuit of efficiency has little or nothing to do with potentially contentious questions about how much energy is needed or what counts as sufficient. But if we look behind the scenes, it becomes obvious that efforts to promote efficiency have the necessary and unavoidable consequence of promoting some, and not other interpretations of sufficient, appropriate and acceptable meanings of service. Like it or not, efficiency measures carry with them an invisible baggage of normative commitment. The same applies to seemingly neutral and seemingly self-evident strategies like those of 'picking the low hanging fruit'.

On closer inspection, what appear to be purely economic logics of payback and return on investment prove to be infused with social and cultural assumptions. The details vary from case to case, but across the board established methods and metrics obscure, but also depend on a raft of tacit understanding and convention. For example, guidelines for energy efficient building reproduce understandings of normal indoor temperatures. Similarly, programmes of energy labelling in the office sector reproduce judgements about normal power loads, and so on. Exactly

the same applies to discourses of energy security and to concerns about the energy trilemma, all of which rest on a platform of weakly articulated but pervasive assumptions about societal needs.

Ironically, and in all these cases, dominant discourses and fables that appear to marginalise questions of demand have the invisible but powerful effect of reproducing very specific interpretations of what energy is for and how much is needed. In other words many of the concerns addressed in our critiques, and many of the seemingly 'missing' debates and topics are not literally absent but are instead camouflaged by the terms in which the field is organised.

Which issues are visible and which are not, which topics are out in the open and which remain in the shadows? The patterns we have described are not random, nor can they be transformed by act of will. As we have seen, the phrases and refrains of energy research and policy reflect and reproduce boundaries and distinctions that are firmly grounded and historically situated. This landscape matters, but habits of thought do not stay still. The patterning of debates and the social and institutional structures to which they connect continue to evolve. This means that although individual energy researchers and policy makers are unlikely to change their spots – to cast familiar terms aside, or to make explicit that which is usually invisible – dominant discourses are always on the move, being propelled and sometimes transformed by discussions and reactions like those we hope this book provokes.

References

Chiu, L.F., Lowe, R. Raslan, R. Altamirano-Medina, H. and Wingfield, J. (2014). A socio-technical approach to post-occupancy evaluation: interactive adaptability in domestic retrofit. *Building Research & Information*, 42(5), pp. 574-590.

Geels, F.W. and Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy*, 36, pp. 399-417.

Hui, A., Schatzki, T. and Shove, E. (2017). *The Nexus of Practices: Connections, Constellations, Practitioners.* London: Taylor & Francis Group.

Humphreys, M., Nicol, F. and Roaf, S. (2011). Keeping warm in a cooler house. *Historic Scotland Technical Paper No 14.* Historic Scotland: Edinburgh.

Kuijer, L. and Watson, M. (2017). 'That's when we started using the living room': Lessons from a local history of domestic heating in the United Kingdom. *Energy Research & Social Science*, 28, pp. 77-85.

Lutzenhiser, L. (2014). Through the energy efficiency looking glass. *Energy Research & Social Science*. 1, pp. 141-151.

Palmer, J. and Cooper, I. (2013). *United Kingdom Housing Energy Fact File.* DECC. London: HMSO.

Rip, A. and Kemp, R. (1998). Technological change. In S. Rayner & E.L. Malone, (eds), *Human choice and climate change. Vol. II, Resources and Technology*. Columbus, Ohio: Battelle Press. pp. 327-399.

Shove, E. (2003). *Comfort, cleanliness and convenience: the social organization of normality*. Oxford: Berg.

Shove, E. (2017). What is wrong with energy efficiency? *Building Research & Information*, 46(7), pp. 779-789.

Torriti, J., Hanna, R. Anderson, B. Yeboah G. and Druckman, A. (2015). Peak residential electricity demand and social practices: Deriving flexibility and greenhouse gas intensities from time use and locational data. *Indoor and Built Environment*, 24(7), pp. 891-912.

Trentmann, F. and Carlsson-Hyslop, A. (2017). The evolution of energy demand in Britain: Politics, daily life and public housing 1920s–1970s. *The Historical Journal*, pp. 1-33.