



Contents lists available at ScienceDirect

## Energy Research & Social Science

journal homepage: [www.elsevier.com/locate/erss](http://www.elsevier.com/locate/erss)



Original research article

# Transforming power: Social science and the politics of energy choices

Andy Stirling\*

University of Sussex, SPRU and STEPS Centre, Jubilee Building Falmer, Brighton, Sussex, United Kingdom

### ARTICLE INFO

#### Article history:

Received 22 January 2014  
Received in revised form 23 February 2014  
Accepted 24 February 2014

#### Keywords:

Power  
Social science  
Transformation  
Energy transitions  
Renewable energy  
Nuclear power  
Climate geoengineering  
Sustainability  
Reflexive governance  
Sociotechnical regimes  
Planetary boundaries

### ABSTRACT

This paper addresses key implications in momentous current global energy choices – both for social science and for society. Energy can be over-used as a lens for viewing social processes. But it is nonetheless of profound importance. Understanding possible ‘sustainable energy’ transformations requires attention to many tricky issues in social theory: around agency and structure and the interplay of power, contingency and practice. These factors are as much shaping of the knowledges and normativities supposedly driving transformation, as they are shaped by them. So, ideas and hopes about possible pathways for change – as well as notions of ‘the transition’ itself – can be deeply constituted by incumbent interests. The paper addresses these dynamics by considering contending forms of transformation centring on renewable energy, nuclear power and climate geoengineering. Several challenges are identified for social science. These apply especially where there are aims to help enable more democratic exercise of social agency. They enjoin responsibilities to ‘open up’ (rather than ‘close down’), active political spaces for critical contention over alternative pathways. If due attention is to be given to marginalised interests, then a reflexive view must be taken of transformation. The paper ends with a series of concrete political lessons.

© 2014 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/3.0/>).

## 1. Transformation and power

The advent of this journal is propitious. And this is not just for the relatively small community of researchers engaged specifically in social scientific study of energy systems. There has long been recognition for the role of social research in energy studies [1] and there can be little doubt of its importance [2]. But the reverse is also true. Of the many expediently segregated – but intimately interconnected [3,4] – functional ‘sectors’ of socio-economic life (like water, food and shelter), there is also a sense in which none are more significant to general development of social science at large – or indeed society itself – than is ‘energy’ [5–7].

It is the ‘energy sector’, after all, that currently stands most momentously at a historic “crossroads” [8]: wrangling over a prospective globally concerted transformation away from fossil carbon infrastructures [9,10]. This is not just an intractable technical undertaking [11]. It is also a monumental cultural and political challenge [12], with outcomes highly sensitive to disparate imaginations of the world and of the place of humanity within this [13,14]. The subjective perspectives under which these issues are analysed and understood, can be as important as the

objective developments themselves [15]. However viewed, though, a conjunction of extraordinary pressures is briefly opening a rare ‘window of opportunity’ [16], through which the re-structuring of large-scale, long-lived ‘sociotechnical regimes’ may be unusually sensitive equally to human agency and historical contingency [17].

So, contemporary developments specifically bearing on the energy sector, may in complex, nonlinear ways help yield potentially profound importance for the more general constituting of future global societies [18]. And understandings of these social dynamics and their possible consequences and drivers depend on – and carry under-appreciated implications for – some of the most fundamental themes in social science as a whole [15,19]. These include: relations between agency and structure; the shaping of knowledges and normativities and the interplay of power, contingency and practice [20]. Here, as elsewhere, it may be that the most rigorously formative influences on academic activity and the quality of the results, might not be the ‘internal’ procedures of institutionalised disciplines, but the ‘external’ transdisciplinary challenges of sincere efforts to effect real-world change [21,22].

At the outset, then, this raises demanding questions over what in this context might be meant by ‘power’. One way or another, it is through various kinds of power dynamics, that any social transformation comes to be realised or suppressed [23]. But power is a notoriously slippery concept, which deserves to be clarified

\* Tel.: +44 01273877118.  
E-mail address: [a.c.stirling@sussex.ac.uk](mailto:a.c.stirling@sussex.ac.uk)

right from the start. In colloquial terms, power is about the exercise of some form of social control [24]. But 'control' is barely less enigmatic [24,25] – also introducing immediate queries over the constituting and bounding of chains of causes, consequences, intentions and collateral effects [26]. In what sense might long run energy futures meaningfully be considered a category even susceptible to 'control' [27,28]? If so, where does the buck stop in tracing drivers and implications [29]? Under what notions of intentionality [30]? And who is the 'we' doing the controlling [31:186]? After all, when has humanity as a whole even undertaken – let alone controlled, still less achieved – any single explicitly and collectively deliberate end at all?

Even in relatively straightforward organisational settings, simple deterministic pictures of control can be problematic. And they are often better understood more as instrumental fictions necessary for the assertion of privilege, than as disinterested accounts of actuality [32–36]. When stripped of this expediency, many real-world instances of 'control' can decompose into complex conditions of diverse mutually adapting intentionalities and (in)tractabilities. And the possibilities of many alternative accountings for causality among proliferating multitudes of nested implicated factors, leaves any particular tracing of control significantly in the eye of the beholder [37]. In energy futures as elsewhere, then, care must be taken that analysis of social dynamics does not – under instrumental pressure of patronage to "see like a state" [38] – simply entrench and perpetuate misleading 'fallacies of control' [39]. Such reinforcing of incumbency can all-too-easily lead to the opposite of transformation.

This is at least as true in wider governance, as it is within organisations [35,40]. And, crucially, it applies as much when contemplating the exercise of democratic, as of autocratic, power in 'social control' [28]. In other words, even in the constituting of the concepts themselves, incumbency has a habit of subverting understandings of 'power' and 'control' [41,42]. History provides many examples where ostensibly revolutionary efforts to overturn incumbency simply reproduce it in another form – often more entrenched [43–45]. If it is to help effect real socio-political change of the depth and scale envisaged, then, serious consideration of the social dynamics of energy transformation, should not fall into this trap.

In order to address these difficulties, then, 'power' might better be addressed in a more nuanced and qualified guise: as 'asymmetrically structured agency'. Here, 'agency' refers to the many different kinds of capacity involved in shaping and performing (rather than controlling) social action [24]. Such asymmetries are constituted by diverse distributions in many social modes [46], media [47], levels [48], relations [49,50], fields [51] and forms of capability [52]. In all these senses, though, agency (and so power) can be recognised as inherently more dynamic, relational and distributed, than it is specifically located [53]. And there are recursively co-constituting – i.e.: "reflexive" [54] – relations with intentionality [55], discourse [56], normativity [57] and political and economic interests [58]. It is these that make so problematic, any simple notion of deliberately controlled social transformation.

So, this understanding of power as asymmetries in flows of social agency has important practical implications for global energy transformation. And these are as salient to understandings, intentions and discourse about change, as to the effecting of change itself. The implicated forms of agency are not singular and controlling, but complex and multidimensional; reflexively conditioning the supposedly driving knowledges and motivations [59]. And the frequently knotty contours in these eddying flows of agency [60], mean that incumbency encounters many ways to subvert the constituting of change. So, ostensibly novel 'transitions' may readily end up concealing what are in actuality, deeper realignments

with existing structures. In other words, the realised forms of 'transformation' may be more discursive and superficial than material and substantive. The more radical and challenging the attempted transformation, the greater this propensity to subversion [61]. Concrete examples (discussed further below), include ways in which pressures for 'sustainable' energy transformation driven primarily by interest in renewable energy, might yield instead, transitions to nuclear power or climate geoengineering. Seeking to effect social transformation is a Faustian dance. Power is necessary for transformation, but this may be subverted if power itself is not transformed.

These are thorny challenges – familiar in colloquial discussion, but curiously neglected in analysis. The present paper can grapple only with a few. Some of the more profound issues will be returned to at the end. For now, discussion will pick up in a more prosaic way. First, it will set the stage for discussing currently mooted energy transformations, by reviewing the intimate general relationships between 'energy systems' and wider social orders. Then, it will turn to some of the entrenched structurings of Modernity – as a particular social form – and the crucial place within this of energy technologies (especially nuclear power). From here, attention will focus on a crucial way in which incumbent interests impede transformation in this sector – constraining and conditioning what counts as 'reliable knowledge' about possible energy pathways. This yields some concrete findings concerning the conduct of social science in relation to energy policy.

These findings will in turn lead to an array of important wider implications for general relations between science and democracy as means to help effect substantive (rather than rhetorical) transformation. The penultimate section will return to the dilemmas and contradictions of power and control sketched above – and urge a more reflexive approach to their reconciliation. In the end, it will be argued that real transformation in global energy institutions and infrastructures – like any radical social change more generally – requires transformation in the 'knowing and doing' of power itself. Although quite general in their scope, these conclusions underpin a very specific set of practical political recommendations of direct relevance to the social science of energy.

## 2. Energy and society

In contemplating the magnitude of the current struggles for global energy transformations, it is important to recall – with other papers in this issue [62–65] – that earlier realised cultural, infrastructural, political and economic transformations have also been profound [66]. And easily forgotten, is that secular rates of change have also frequently been formidable [67,68]. Cumulative infrastructure developments are often as formative in their effects as wholesale substitution [69]. But few previous structural shifts have been as historically rapid or socially pervasive as those now envisaged for global energy transitions [70]. Nor – crucially – have they aspired to the same depth or extent of explicitly shared social intentionality or assertively coordinated political control. It is in the associated discursive pressures to emphasise the need for (and claim and appropriate) such control, that there arise the dangers of the instrumental fallacies discussed above.

Challenges of global energy transformations, then, are not just on a significantly greater scale, but also arguably of a radically different order to any previous deliberately concerted political undertaking. It is worth reflecting on the empowering audacity of this ontological novelty, before wringing hands too despairingly over the oppressive difficulties bearing on current efforts to achieve it. In the absence of deliberate reflection on this point, it is not just

Download English Version:

<https://daneshyari.com/en/article/6559041>

Download Persian Version:

<https://daneshyari.com/article/6559041>

[Daneshyari.com](https://daneshyari.com)