Original research article

Telling tomorrows: Science fiction as an energy futures research tool

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ABSTRACT

Any sociological discussion of energy consumption must necessarily deal with not only the social practices underpinning that consumption, but also the complex sociotechnical assemblages through which such consumption is enabled. Likewise any sociological discussion of climate change must necessarily deal with not only radically different contexts, but also the inherent uncertainty that accompanies any exploration of times yet to come. There are many ways in which one might narrate and/or critique such futures, but few which can handle all of the challenges mentioned above. Such work requires a medium and methodology which can: represent the social alongside the technological; move fluidly between micro, meso and macro scales; reconcile historical trajectories with extrapolated trends and speculative leaps; and – perhaps most importantly—speak across (and beyond) the disciplinary and administrative silos of both the state and the academy. This paper makes a case for the utility of prose science fiction both as a methodological tool of representation and portrayal for energy futures research which meets these criteria, and as a storehouse of tools and strategies for the critique of energy futures.

1. Introduction

"You've got to create your own worlds. You've got to write yourself in."—Octavia Butler [17]

In this paper I make a case for the utility of science fiction as a representational tool for energy and climate research, or more particularly for "energy futures research", as per my title. I shall address the sometimes slippery matter of defining science fiction in a subsequent section, but first I should clarify what I mean by "energy futures".

I am casting the net of the plural noun "futures" as widely as possible, here, so as to cover the forecasts and scenarios of futures studies and strategic foresight (as practiced both within the academy and without), but also to capture the manifold *narratives of futurity* which are produced, reproduced and remixed well beyond the remit or control of those who profess a stewardship of, or expert insight into, "the future". I define *narratives of futurity* as a metacategory which contains all texts—regardless of medium or teleology—whose story extends temporally beyond the Now of the narrative's creation: this therefore includes profit and loss projections, political manifestos, business plans and advertisements for consumer products alongside research funding bids,[1] strategy scenarios, speculative designs and science fiction stories, and more besides. (For a more thorough discussion of narratives of futurity, please refer to [19].) Such an understanding of "futures"

foregrounds a plurality which is nonetheless easy to understate: while the privilege of leading or steering public discourses of futurity are reserved for the fortunate few, there is no monopoly on the production (or, increasingly, the distribution or repurposing) of narratives of futurity, which can be found almost anywhere one finds people to whom futurity is a meaningful concept.

What then are "energy futures"? I have taken this term to refer to narratives of futurity within which the relationship between bodies and energy consumption differs from that which prevails in the present. If we approach energy futures through the lens of social practice theory, the term implies a rearticulation of the constitutive elements of one or more energy-consumptive practices, resulting in a changed performance (or performances) of said practice—in other words, *a new way of doing something.* (Or, more reasonably, a *different* way of doing something—for what is novel to one performer may not be novel to all.)

As deployed in the work of scholars whose work is particularly concerned with resource consumption (see e.g. [22,24]), the practice theory lens further implies an understanding of practices as being essentially tripartite, a function of the *meanings* informing the practice, the *competencies and abilities* which the practice demands of its performer, and the *material technologies and systems* which are enrolled in the performance. With regard to energy-consumptive behaviours in particular, the assemblage of technologies and systems utilised includes

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[1] We academics produce narratives of futurity as a routine part of our work, regardless of discipline.

both the immediate interface technologies through which the performer initiates the practice, and the metasystemic tangle of infrastructures which enable the function of the aforementioned interface technology, which in turn mediates the relationship between performer and infrastructure. Or, more simply: it is understood that energy-consumptive practices enrol technological systems across a variety of scales, and that such practices shape (and are shaped by) the technologies and infrastructural systems that they enrol.

By way of example: a person who drives a petrol- or diesel-fuelled car is clearly reliant on the road network, but they are also reliant on the national network of fuel distribution (which is also reliant on the road network), which in turn relies upon a global supply chain of oil extraction, processing and distribution. Meanwhile, an electric vehicle might avoid the oil dependency, but only by replacing it with a dependency on the national electricity grid and the availability of compatible charging points. On one level, this can be seen as a matter of rational consumer choice, wherein the driver assesses their options and picks the optimal—and, indeed, this is how much behavioural research tends to frame it [23]. Practice theory, by contrast, emphasises the role of infrastructural affordances in shaping such choices: this is a matter of not only the differing affordances of the vehicles themselves, but the availability of the infrastructural functionality necessary for them to operate.

To speculate a little: the short operational range of an electric vehicle might preclude its being used by someone living in a remote rural location, because the supporting electrical infrastructure required for charging it does not extend out to the area in question, while liquid fuel distribution does; however, if that rural location happened to include a large solar PV farm, and the would-be traveller doesn't often drive far from home, the electric vehicle might actually work out to be a better option for them. The selection of an interface technology is at the same time the selection of a set of interconnected systems, even if it is not always understood as such: in this way, the affordances and availability of infrastructural function simultaneously enable and constrain the range of actions which might be taken by individual and collective actors. At the same time, socially constructed meanings modulate those choices: for some, the lower emissions (and environmental values) associated with the electric vehicle might make it the preferable choice despite distinct operational disadvantages, while for others, the romance of the internal combustion engine (or perhaps simply a contempt for environmental concerns) might trump more rational arguments. It is from this interplay between the social and the technical that the lived realities of practices emerge—and hence it is my contention that these relationships and dynamics must necessarily be captured by any useful portrayal of future practices.

In the following sections of this paper, I will outline what I consider to be the essential requirements of a methodology for the portrayal or representation of energy futures from the practices perspective, and then demonstrate that prose science fiction ('sf' hereafter) is capable of meeting those requirements; I will then warrant that claim by reference to historical and contemporary approaches to the portrayal of futures which are, to a greater or lesser degree, dependent on the specialised narrative and metatextual toolkit developed within sf as a literary genre. Finally, I will review a few hazards inherent in the form, and rehearse their rehabilitation as advantages in context, before concluding with a summary of the advantages and disadvantages of a science fiction-based representational methodology.

2. The portrayal of futures

2.1. On the purpose of portrayal

Before discussing criteria for the portrayal of energy futures, it may help to spare a few words on the matter of telos, or purpose: what might such portrayal achieve? After all, imagined futures are increasingly ubiquitous, not to mention banal; would producing more not merely

add to the noise?

I would counter that it is precisely the ubiquity of banal futures which necessitates the production of richer futures, lest we cede the battlefield of futurity to salesmen and demagogues. But it's not merely a matter of contesting and critiquing simplistic narratives of futurity. We might think of it instead as a sort of speculative ethnography: a way in which to explore and evaluate practices and assemblages which do not yet exist, or which exist only as outliers. A narrative making use of the science fiction toolbox can propose a practice and critique it simultaneously; as such, this can be considered a form of prototyping or design practice.

However, narrative prototypes have a value beyond the bounds of sociology. The great advantage of story as a medium is that it can be used to depict complex ideas and phenomena in action without recourse to the sociological lexicon—in other words, narrative presentation can be used to despecialise topics which normally carry the taint of jargon and expertise, and depict them from the perspectives of everyday people. This in turn has the potential to open up discussion around energy futures, turning the discourse away from its current technocratic paradigm and towards a more inclusive, participatory process in which citizens can recognise their own experiences and perspectives. Critiquing development plans and white papers on infrastructural innovation is a specialist skill, but almost any literate person can engage with a story—particularly when it's a story that concerns their own future. I therefore see the honest and critical portrayal of futures (energy or otherwise) as a prerequisite to public participation in the shaping of technoscience: to paraphrase the infrastructure activist Jay Springett, we cannot have a conversation about something we cannot see.

2.2. The core challenge: sociotechnicality

Given the implicit assumptions outlined in my introduction above, I would argue that the core challenge in depicting any "energy future" lies in capturing the fundamentally sociotechnical nature of practices. Recall that a practice constitutes not only the *materiality* of technologies and physical action-in-the-world, but also the *sociality* of culturally-situated meanings and competencies. Given the innate bias of many portrayal methodologies towards either the material or the social (or, for that matter, towards the quantitative or the qualitative), such portrayals are 'incomplete' in terms of social practice theory: they simply don't (and in some cases, simply can't) present the full picture. If we wish to investigate and critique energy futures through the lens of practice theory, we must therefore find a portrayal methodology which is equally accommodating of the material and the social.

2.3. Secondary challenges: scale, temporality, subjectivity

The infrastructural underpinnings of contemporary energy-consumptive practices add further supplementary requirements to the above specification.

2.3.1. Scalar agnosticism

The portrayal of infrastructural enrolment in practices necessitates the ability to narrate fluidly across different geographical scales, from the granular detail of a particular performance to the abstracted complexity of national or even global infrastructural networks. Or, more simply: a suitable portrayal methodology must be able to bring a power-shower into the same frame as a power-station. As with scale in the material, so with scale in the social: the suitable methodology must be able to reconcile individual action with collective social dynamics, and portray them with a comparable fidelity.

2.3.2. Temporality

The portrayal of futures in general requires a reconciliation of the events of the past with the trends of the present; the portrayal of