What can energy research bring to social science? Reflections on 5 years of *Energy Research & Social Science* and beyond.

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Abstract

Energy Research & Social Science (ERSS) emerged in response to an identified lack of social science energy scholarship. The first publication in this journal asked 'what can the social sciences bring to energy research?'. Since then, ERSS has become a home for articles that have explored this question in a multitude of ways. In this Perspective we want to reflect, and stimulate debate, on the question we see as the other side of the coin: 'What can energy research bring to the social sciences?' We develop our reflection, first, by exploring energy's unique features: what a focus on energy makes visible and thinkable that other entry points do not. We subsequently introduce a 'menu of possibilities': areas of scholarship where focus on energy has enabled or could enable different ways of understanding the world. We conclude with the suggestion that by changing the object of analysis, energy scholars can develop both new conceptual insights, and emphasise our connections with issues explored outside of energy scholarship.

Keywords: energy and society, materiality, sociotechnical transitions, object-oriented ontology, social theory, energy governance

1. Introduction

Energy Research & Social Science (ERSS) emerged as a response to a perceived need for greater integration and application of the social sciences in energy research. To stimulate discussion, the first article in this journal asked what the social sciences can bring to energy research (Sovacool, 2014). Over the last five years, the articles published in ERSS have demonstrated the value of social science research, (re)conceptualising energy as a socio-technical, socio-material, political, and ethical issue, amongst others. ERSS has given social science energy researchers a 'home', a place where we, conducting energy research as social scientists, can further explore this plurality of social science and humanities (SSH) perspectives in relation to energy systems. However, it is important not to lose sight of the other side of the coin. We *also* need to ask: 'What can energy research bring to the social sciences?'

We believe now is an appropriate time to reflect on this question. Andrew Stirling (2014) noted the importance of energy to society and the social sciences in the inaugural issue of this journal. Since then we have seen the rapid development of social science energy research. Social science studies of (renewable) energy has evolved from a field dominated by economic and policy analyses (Goldblatt et

al., 2012; Sovacool, 2014), to one that interrogates how key social scientific themes of agency, power, stratification (to name only a few) play out in the energy domain. We now see investigation of a much greater plurality of societal questions, across a range of energy domains and various locations and scales. In this journal alone, these include local and community dimensions of energy generation (Bauwens et al., 2016; Haf and Parkhill, 2017; Taylor Aiken, 2018); energy saving behaviours and the application of social practice theory to understanding energy demand (Walker, 2014; Simcock and Mullen, 2016; Hui and Walker, 2018); questions of justice, democracy and equity (Walker et al., 2016; Jenkins et al., 2016; Burke and Stephens, 2017; Jenkins, 2018; van Veelen and van der Horst, 2018); energy and governance (Falkner, 2014; Goldthau, 2014; Kuzemko et al., 2016; Dowling et al., 2018); energy ethics and ethnographic approaches (Smith and High, 2017), and many others.

Social science and humanities energy scholars have adeptly brought social and political theories to the study of energy issues, developing new (sub)fields of enquiry. Energy justice (Bickerstaff et al., 2012; Jenkins et al., 2016, 2017; Sovacool and Dworkin, 2015) is one clear example of a social science energy concept that has gained significant traction in recent years. These new fields of enquiry have contributed greatly to broadening and deepening an understanding of energy issues as interconnected social, political, economic and technical problems. However, we believe there is a risk that while strengthening our own 'niche', we could lose track of how our research connects with wider societal issues as well as with social theories that are being developed beyond energy-related fields of scholarship.

In this *Perspective* piece, we hold onto the value or importance of research that uses social theories and approaches for understanding energy issues. Many of us conduct research that falls into this category. We wish to complement research that already uses energy as a lens or tool to understand the (social) world or develop social theory. At heart, we argue that by changing the object of analysis, we can not only develop new conceptual insights (see also Shove, 2010; Urry, 2014; Elliott, 2018), but also emphasise our connections with research and issues being explored outside of scholarship focussed on energy. We build on Stirling's (2014) premise that SSH energy research is rarely solely about energy. Going by the publications in this journal and elsewhere, many social researchers consider the transformations of our energy systems to be closely connected with wider societal issues. The question that has emerged for us is: given the burgeoning of SSH energy research in recent years, how has, and can, an energy lens shed new light on these issues?

The remainder of the paper is structured as follows. In section 2 we consider some crucial dimensions that make energy an important area of study for SSH. We ask what a focus on energy makes visible and thinkable that other entry points do not, emphasising the ontological status of energy and its in/visibility; and its central place in the organisation of social life. In section 3 we use the idea of

energy as an entry point for SSH research to consider some key themes which existing literature has begun to address from this perspective. We conclude in section 4 with a reflection on the importance of dialogue and further debate on this topic.

2. What does a focus on energy make visible and thinkable that other entry points do not?

Within the growing body of social science and humanities (SSH) energy research, acknowledgement of the co-productive relations of social and technical systems has become sufficiently dominant for Bridge (2018) to recently proclaim that "we are all sociotechnical now". However, the ways in which social elements and technical artefacts are co-configured is open to multiple interpretations. We distinguish between two main approaches. The first originates in the inaugural issue of ERSS, where Sovacool proposes that "ERSS investigates the social system surrounding energy technology and hardware" (2014: 25). Here, the purpose of SSH is to contextualise the technical aspects of energy – load storage, kWh, power differentials, etc. – with the more-than-technical: governance, politics or cultural reception, economic structures, and human behaviour. This approach enables attention to focus on 'hidden' aspects of energy production and consumption, the otherwise taken for granted. Energy without any social, political, or economic contextual framing, its production and use, historical trajectory, path dependencies, lock-ins, and spatial extent, is reduced to its technological aspects: flowing electrons, and engineering and resource challenges. Traceable to Transitions Theory and the Multi-Level Perspective, this type of sociotechnical thinking often adopts SSH conceptual tools and analytical techniques to understand how technical innovations interact with (external) social systems to form a sociotechnical system (Sorrell 2018). Consider, for example, a nuclear power station. Geographical approaches shed light on the spatial and scalar dynamics such a project is dependent on; anthropological lenses might point to the prior contingency of such large-scale energy infrastructures on the presumption of somewhat undifferentiated localities that respect expert knowledge; economic analysis can draw our attention to how value is accumulated and (re)distributed through a power plant; psychological and psycho-analytic approaches offer insights into what the form and image of the power station does in unconscious and pre-reflective ways. The potential layers of understanding that SSH offers energy are manifold.

However, the reverse is also true. In the same sense that different theoretical lenses shed different light on the same empirical phenomenon/object – or, you might say, construct those phenomena/objects differently – changing the object of analysis can open up different ways of knowing and understanding. Such an argument was already made close to forty years ago. In 1980, Langdon Winner argued that in its attempt to counter technological determinism social and political science scholarship became too focussed on understanding the social or economic systems in which

(energy) technologies are embedded. Instead, Winner asked scholars to consider an alternative approach, to

> "pay attention to the characteristics of technical objects and the meaning of those characteristics. A necessary complement to, rather than a replacement for, theories of the social determination of technology, this perspective identifies certain technologies as political phenomena in their own right." (Winner, 1980: 123).

This second approach has been taken up once more in recent energy scholarship in science and technology studies, anthropology and some quarters of geography and sociology, which has seen an object-oriented ontology carried from philosophy into other SSH disciplines. This scholarship opens up a way of addressing energy that challenges tendencies to cast it in monolithic terms or as a technical object to be contextualised by social science research. Influenced by the work of scholars such as Timothy Mitchell, Dominic Boyer, and Cymene Howe it disrupts the notion that social science is about generating context. This literature is not concerned with building up a social landscape around energy (as a technical object), but rather proposes that what we experience as energy (e.g. pylons, turbines, switching on lights) is composed of plural social, political, and material actors and processes. By illuminating the constitutive role of material artefacts and processes in social and political life, such approaches highlight the multiple entanglements between human and non-human actors that shape everyday transformations.

2.1 Placing energy centrally

An example of the potential for this inversion of energy and social science research can be found in Timothy Mitchell's *Carbon Democracy* (2009; 2011). Mitchell situates energy in general, and oil specifically, centrally in charting the history of the 20th century. He argues that we cannot fully account for the production and consumption of oil without reckoning with the strategic political, economic and social forces implied by, and implicated in, the transition from coal to oil. He draws attention in particular to the UK government's efforts to curb working-class and union power associated with coal in the early 20th century.

However, as Mitchell hints, studying energy systems also allows us to more fully appreciate the political, economic, and social processes that may co-arise with different forms of energy. Mitchell reconceptualises democracy away from a notion rooted in classic political science (i.e. including key components of elections, separation of powers, rule of law) to one rooted in materiality. Such a view, which is becoming more prevalent in the social sciences and which we are also advocating here, suggests that, (1) we cannot fully account for any aspect of socio-political organisation without

understanding the crucial role played by energy on a substantive level (see also Boyer and Szeman, 2014; Malm, 2015), specifically, the shift from coal to oil as the most globally influential fuel, and latterly from oil to what emerges from our current energy transition; and (2) that using energy as a lens enables us to develop new conceptual tools for understanding the world.

The first article in the inaugural issue for this journal called for more human-centred research methods (Sovacool, 2014: 2). Conversely, these object-oriented approaches decentre the human as the central unit of analysis: they focus on what materials do in a deeper sense, exploring the more-than-technical ways in which materials reframe, guide and lock in political and social patterns. Showing that energy infrastructures are themselves political means that not only does SSH energy research allow for a more rounded and nuanced understanding of the actors and processes that compose what we call 'energy', but also that lessons can be applied across 'the social' 'the political' and various other domains. Andrew Barry, in his research on the construction of a new oil pipeline across the Caucasus (Barry, 2013) takes just such an approach. By attending to what materials enact, and how they are imbricated with social, political and economic forms with respect to the pipeline, Barry opens up new insights into the kinds of political life that spring up with the specific materialities of oil infrastructures.

2.2 Energy as in/visible

One reason energy's materialities are interesting is because they are notably different from those of most other resources: food is visible; water is visible; but electricity and heat are only made visible through their infrastructures and effects. Many attest to the invisibility of energy in daily life, yet it underpins human action and organisation (Hargreaves et al., 2010; Burgess and Nye, 2008; Trentmann, 2018). Energy has the potential to reconfigure ontological views on material and non-material entities. It has an uneasy relationship with materiality: although, for example, we can say that electrons are a form of matter from a scientific perspective, heat and light are forms of energy that have material effects. We think there would be great value in research that further explores the ontological implications of this hybrid in/visibility and im/materiality, and reflects on how this shapes how we as researchers conduct research and understand the world.

The invisibility of energy also offers further avenues for questioning the role of (im)material things in shaping participation. Foucauldian perspectives have treated matter as a tacit, constitutive force in the fabrication of political subjects (Marres and Lezaun, 2011). A greater focus on the (im)material properties of energy enables consideration of how materials can be deployed to enact participation as a practice in a particular setting (such as energy-saving behaviour), whilst also enabling a deeper look at how things acquire the capacities to organise publics in such a way. In other words, it enables a consideration of how participatory objects are made (Marres and Lezaun, 2011; Marres 2012).

While approaches that have adopted an object-oriented ontology have been at the forefront of making materials 'matter' (and visible), these approaches are by no means the only way of doing so – witness the various 'material turns' across SSH, from material culture to Science and Technology Studies (STS). We argue, however, that an approach that conceives of energy as constituted of human and non-human elements (and therefore as always already entangled with 'the social') rather than as a technical process that requires contextualisation by the social sciences, offers up a different way of seeing. Energy embeds itself in SSH fields, such as Energy Humanities (Szeman and Boyer, 2017), in ways that foreground energy's materiality. Energy only reveals itself to us through objects and materials. As Cross et al. argue in relation to the role played by electricity in human life, electric things "mediate[s] human relationships with the electron", mediating "human sociality" and "ecological and interspecies relationships" and transforming our possibilities not only for reproducing and sustaining life, but also for controlling and ending it (Cross et al. 2017: n.p.). In summary, we have argued so far that seeing through the lens of energy contributes to SSH by drawing attention (1) to 'energy' not as a singular, self-evident object of analysis, but rather as a phenomenon that is composed of plural social, political, and material actors and processes; and (2) to how this assemblage (re)produces the more-than-technical aspects that make up our lives.

In the next section we seek to explore this second point in more detail. How does a focus on energy enable different ways of understanding the world? We introduce a number of ways this question has been, or could be, tackled by SSH researchers. This is not an exhaustive list: that would be beyond the scope of this Perspective. Instead, it is as Elliott (2018: 304) puts it "a sort of menu of possibilities", identifying touch-points between energy and the social sciences. In some of these areas, SSH researchers have already produced substantial insights on the way energy (re)frames particular ways of seeing and knowing. In others, these insights may be more limited or partially developed, thus opening up fruitful areas for further research.

3. Connecting the dots: what placing energy centre stage can contribute to SSH research

3.1 Governance, power and (re)energising democracy

As well as the material dimensions of energy being notably different from most other resources, energy – specifically electricity – is also unique in that there is a tendency to frame it primarily as a technical issue that lacks cultural significance, somewhat in contrast to resources such as water and food. As a result, energy is often characterised as a 'depoliticised' (Kuzemko, 2016) issue that is addressed technocratically as an object of *policy* but not *politics* – at least in countries with (near) universal access to energy. Again, the work of Mitchell (2009; 2011) provides one of the most significant recent exemplars of scholarly work seeking to show how a focus on energy opens up new ways of seeing political and governance questions. It ties the historical contingency of the state to the

influential role that energy has played in producing categories such as democracy, which are often taken as foundational. Pointing to the material bases of political structures is not itself new (see for example Anderson, 1974; Malm, 2015), but Mitchell casts his lens specifically on the close symbiotic relationship between energy source and form and the unfolding of particular socio-political formations.

A small but growing body of research, particularly from within Anthropology, has further problematised the relationship between energy and socio-political life. Most recently, Abram, Winthereik and Yarrow (2019) suggest in the edited volume, Electrifying Anthropology, that they are building on scholarship that adds "renewed impetus to efforts to move beyond binary framings of electricity as a variously 'social' or 'technical' entity" (2019: 5). Bruun Jensen, in his contributing chapter points to a role for anthropology as a means of exploring electricity and its infrastructures less in terms of the socio-cultural frameworks through which energy is understood and experienced, but rather "as a set of material assemblages that generates heterogeneous effects beyond human perception and volition" (Bruun Jensen, 2019: 12). Such an approach is exemplified in the work of Dominic Boyer, who, in 2014, coined the term 'energopower' – a transformation of the Foucauldian concept of 'biopower' – to "rethink political power through the twin analytics of electricity and fuel" (Boyer, 2014: 325) and describe how energy generation is harnessed in the management and governance of life. Rather than being an example of 'additive' research (i.e. taking an established term such as biopower and twisting it to fit a new empirical domain [energy]), energopower claims to revivify social science research. The concept supports enquiries into the capacity of different energy technologies and infrastructural assemblages to shape political and economic outcomes beyond their role in storing, transporting or transforming energy (also Bridge et al., 2018).

SSH research has taken up this direct focus on the theme of (low-carbon) energy democracy (van Veelen and van der Horst, 2018; Burke and Stephens, 2017; Angel, 2017), largely approaching democracy as a form of material participation. Energy democracy draws from approaches in science and technology studies that theorise how the socio-material conditions of public participation can challenge or complement visions of public action grounded in deliberative processes (for example Marres and Lezaun, 2011, Chilvers and Longhurst, 2016, Smith and Stirling, 2016). While such a material view of democracy can be viewed as radical, conceptualising democratic participation as taking place through investment in, or control/ownership of, energy generating resources also risks creating new divisions and exclusions.

The reconfiguration of energy systems is therefore interesting, enabling us to look at how it becomes possible for novel spaces of politics to be prised open within so-called 'technical' domains. In countries like the UK, energy decentralisation represents a rather extreme version of transition from a

domain of ‘black boxes’ presided over by a closed regime of experts to something that is becoming embroiled in both local and translocal politics and place-making (for example Lloyd, 2018; Roelich et al., 2018). Further research exploring the boundaries of this conceptualisation of democracy would be valuable. In what instances is ‘doing’ (not) an expression of democracy? How does the multiscalar nature of energy systems, including the different forms of (or lack of) participation they elicit at different scales, challenge or shed new light onto understandings of the polis?

3.2 Energy ethics: equity and justice

Recent years have seen the rapid emergence of the concept of ‘energy justice’, as evident through special issues published in this journal and *Energy Policy*. Energy justice is an interesting example, as some of its proponents (for example Jenkins, 2018) have sought to analyse what the ‘energy’ focus adds vis-a-vis related concepts. Here, the energy focus is said to “provide a way of ‘bounding’ and separating out energy concerns from the wider range of topics addressed within both environmental and climate justice campaigning” (Bickerstaff et al., 2012: 2). Nonetheless, as Jenkins (2018) notes, this also risks silo-ing energy justice questions from wider debates around equity and justice, and perhaps ignores the multiple injustices that many individuals and social groups may face.

This issue of silo-ing is especially pertinent to the burgeoning area of research around fuel (or energy) poverty, which explores both the sources and impacts of inadequate access to energy. Conceptualised as an expression of injustice (Walker and Day, 2012), fuel poverty research has the potential to re-emphasise the importance of material conditions in shaping human well-being. A potent example is the intersection of energy-as-fuel and homes. The psychosocial importance of perceived warmth and comfort has helped produce new understandings of how people experience the home as a site of elemental comforts and threats. However, when considering the contribution of this energy research to SSH, a more nuanced interpretation comes to the fore. We cannot help but ask: does an energy focus risk focusing on the symptoms rather than the causes of injustice (see also Agyeman and McEntee, 2014; Webb et al., 2016)?

How can, and does, this body of research on fuel poverty connect to the multiple deprivations that many living in fuel poverty experience? Does a focus on *energy poverty* in place of *poverty* open up or close down different ways of understanding poverty? Through approaching fuel poverty from the ‘bottom up’, starting with people’s lived experience of fuel poverty, research has begun to highlight the multiple and intersecting challenges which shape people’s vulnerabilities (Middlemiss and Gillard, 2015). In this literature, people’s ‘capabilities’ to respond to vulnerability are conceptualised as relational, socially embedded, and cyclical – enabling either a ‘vicious’ or ‘virtuous’ cycle (Middlemiss et al., 2019; see also Day et al., 2016). If we compare the UK to other countries,

however, we might also wish to ask what has been achieved and missed by drawing fuel poverty into the discrete technical-economic sphere of energy policy rather than of social welfare policy.

Beyond fuel poverty we may also want to ask what insights the energy justice concept offers the broader notion of just transitions, which describes transformations from a high-carbon to a low-carbon economy that go far beyond the primary energy sector alone. Equally, how does a material conceptualisation of justice differ from older conceptualisations of justice, and with what consequences? Finally, considering energy's rather unique features, what are the philosophical and empirical connections and tensions between energy justice and other materially-based calls for justice over food or water, or over less tangible phenomena, such as climate or the atmosphere?

3.3 Energy geographies and questions of place, space and scale

With a substantial proportion of social science energy research conducted by geographers, a significant body of work has begun to connect questions of energy with those of place, space and scale. The conceptualisation of energy as distinctly multi-scalar has helped to show how networks and actors can cut across and link different spatial levels in the context of multiple levels of order and change, and through time (Raven et al., 2012). SSH energy research reminds us, however, that such processes are rarely smooth, problematising earlier uncritical globalisation literature, which via the notion of the weightless economy, often emphasised connectedness through frictionless flows. Engagement with the symbolic and material qualities of energy encourages us to contend with struggles around resources: where they are extracted; where and how they flow; and where, how and why they are consumed (Castán Broto and Baker, 2018).

As such, SSH energy research has helped further understandings of spaces and scales of social life, especially cities, communities, and households. Exploration of the deeply entangled nature of (fossil-fuelled) energy with urban processes has helped to emphasise the complexity of sociotechnical change beyond individual technologies: "… the urban experience and condition (in their inherent diversity) are constantly reconfigured by energy and by the evolving and contested ways in which they are connected" (Rutherford and Coutard, 2014: 1355). Energy research has the potential to further prise open the notion of places as containers to reveal in greater clarity their deeply thrown-together (Massey 2005) and translocal nature (McFarlane, 2009; Datta and Brickell, 2016). Here, there are interesting avenues for SSH energy research to use notions of frictionless versus discontinuous, irregular or encumbered flows to understand the different ways energy shapes social life, and the relations between them.

By taking materialities seriously, object-oriented approaches also point to how energy infrastructures both open up and circumscribe the possibilities for imagining sociotechnical futures, not least through their absence or decay (Richardson and Weszkalnys, 2014; Kuchler and Bridge, 2018). Visions of a 'good society' or desirable futures are not crafted out of the 'cultural ether', but rather by taking inspiration from the "already existing material world, which in turn shapes the potential 'futures' they imagine" (Smith and Tidwell, 2016: 345). In what ways do new forms of energy generation, transmission and use inscribe (1) particular sites and their imagined futures, and/or (2) previously identified geographical divides (for example, urban/rural) in new ways, and with what effects?

3.4 Energetic markets, goods and values

Another growing area of social science energy research draws from economic sociology perspectives on the social construction of markets (MacKenzie, 2006; 2008). Here, 'economics', in its broadest meaning is taken as the object of enquiry, including formal economic scientific knowledge through to individual techniques, the 'equipment' of economics and human actors. Concern with the materiality of markets creates new ways of exploring interrelations and the mutual reinforcings of society rather than collapsing any distinct separation between 'economy' and 'society'. SSH energy research has the potential to revivify this field, with energy providing an ideal case study for exploring the challenges and limits of market construction (see Silvast, 2017 for review). In EU energy policy, for example, the internal energy market is a kind of 'economic object' from this point of view, involving a wide range of actors operating with varying spatial jurisdictions and with different goals, as well as operating across a range of different regulatory and market contexts, not to mention the varying material differences in energy systems across the EU. The development of this internal market is the result of a long history of efforts of integration and incorporates elements of previous 'waves' of integration. Its workings are both enabled and complicated by the various layers of energy markets, and a range of market mechanisms operating at EU and nation-state level to promote low carbon energy (Bolton et al 2018).

The complexity of market-making is further highlighted through considering the intersection between the intangibility of carbon and the materiality of energy infrastructure. Such a perspective offers opportunities for new analyses of the ways in which (im)materialities shape markets and enable particular political economies to emerge. For example, Bridge et al. (2019) build on work in economic sociology to highlight how the immateriality of carbon combined with the challenging materialities of renewable energy infrastructure required organisational, calculative and regulatory adaptations in order to enable low-carbon investment to flow.

However, looking particularly at the UK example, we can also see how despite the huge ideological effort, regulatory resources and technical commitment required to construct and maintain markets, such markets continually proven to fail in a wide range of ways across several energy-related domains (e.g. Thomas 2006, CMA, 2016; Webb and Hawkey, 2016; Rosenow and Eyre, 2016; Eadson and Foden. 2019). Exploring how and why energy markets fail provides an extreme example through which to observe how marketisation bumps up against the manifold more-than-market values and motivations involved in everyday, political and institutional life. There is potential here for energy researchers to contribute to the development of a material sociology of markets, which can also further understanding of the workings of, and entanglements of markets with, power, interests and values (see also Webb and Hawkey, 2016; Webb, 2019).

4. Conclusion

Sovacool (2014) observed in the inaugural issue of *Energy Research & Social Science* that energy researchers could become 'Ptolemaic' – tinkering with their models, rather than overhauling them. As we have set out here, we feel that a Copernican revolution in social science and humanities (SSH) energy research would take seriously the attempts of approaches such as object-oriented ontology to place energy – as an entanglement of both human and more-than human processes – at the heart of its analysis. While we have not been able to offer a comprehensive overview of each of these theoretical perspectives, we have sought to demonstrate that there are many perspectives available that can be furthered and deepened.

We argue that the materialities of energy warrant attention in their own right. To name just a few reasons for this, energy is foundational for life as we know it; has a crucial and ever-evolving technological component, without ever being fully reducible to this; demonstrates a unique settlement between the roles of experts and publics; is an integral system-wide phenomenon, while also being particularly instantiated in different locations; and is intangible and transient. It is not these characteristics in and of themselves that make energy a crucial site for theory building. In combination, however, energy is a unique and specific phenomenon from which SSH can learn, build on, and help provide an explanatory framework for.

We want to re-emphasise that we do not inherently disagree with the view that social sciences are useful for generating 'social context' for 'technological' processes. We ourselves have sought to understand and explore energy-related issues ourselves in this way. We do believe however, that we can broaden the debate by presenting the 'other side of the coin': by linking up how social scientific energy research contributes to the broader social sciences and humanities.

By placing energy centre stage, we do not argue for technological determinism. Rather, we see energy in and of itself as an assemblage of technical and more-than-technical nodes. We would therefore reframe Sovacool's proposition for social science energy research to suggest not only that we look to investigate the social systems that contextualise energy technologies, but also that we consider how energy co-emerges and is imbricated *with* social, political and economic processes. We appreciate these approaches will have different ontological and epistemological starting points, but we encourage others to explore the fractures, tensions and possibilities emerging from them.

We believe it will continue to be fruitful to ask 'What can the social sciences bring to energy research?' and we hope fellow SSH energy researchers will join us in further exploring the question 'How does a focus on energy enable different ways of seeing, knowing, and understanding?' By doing so, SSH energy researchers can, and are, contributing not only to a better understanding of our energy systems, but also to our respective disciplines and life worlds.

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