Energy -SHIFTS

Energy
Social sciences &
Humanities
Innovation
Forum
Targeting the
Set-Plan

Four scoping workshop reports for Energy-SHIFTS

Editorial

Sarah Royston

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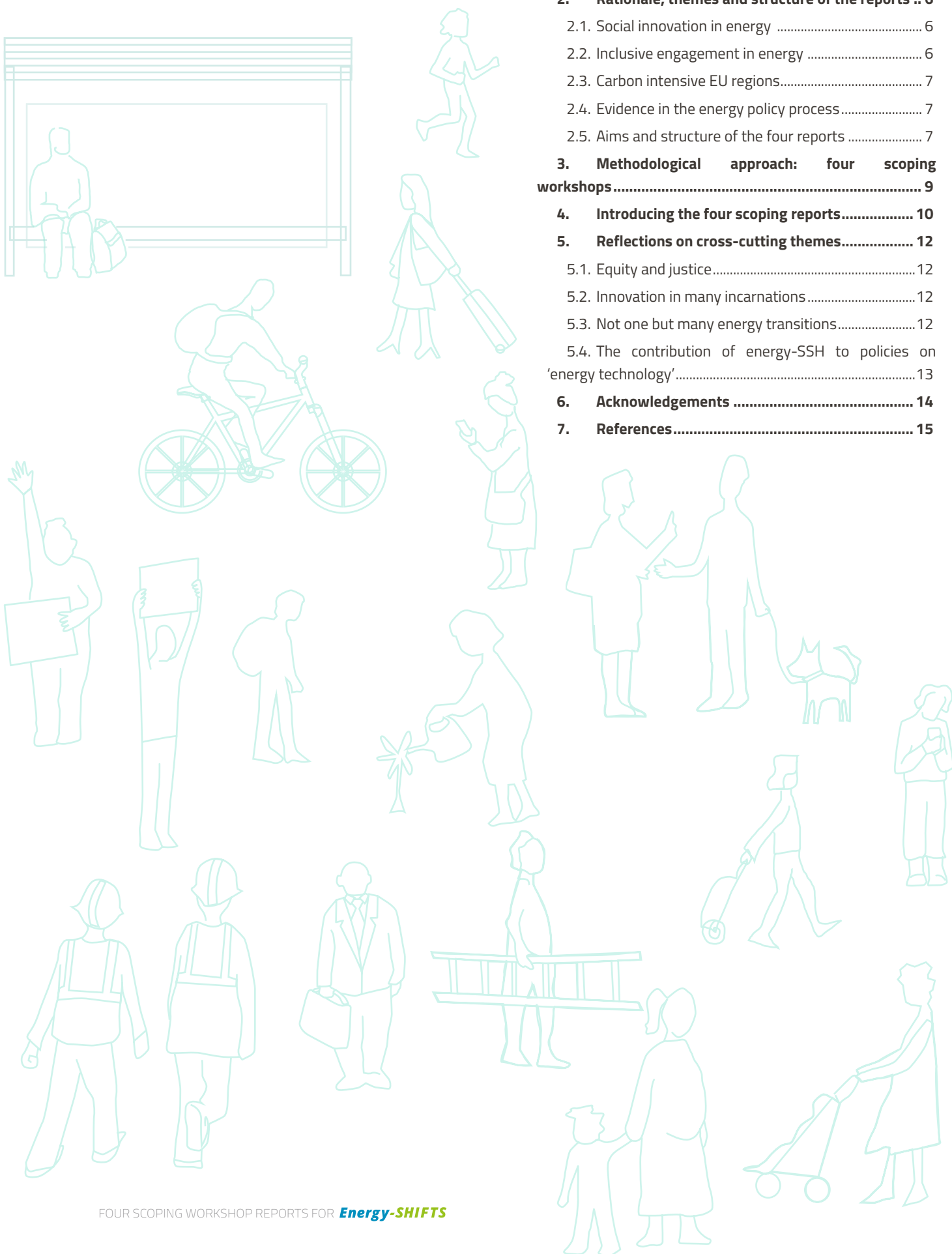ANGLIA RUSKIN UNIVERSITY, UK

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Acronyms

EC	European Commission
Energy-SHIFTS	Energy Social Sciences and Humanities Innovation Forum targeting the SET Plan
ESR	Early Stage Researcher
EU	European Union
H2020	Horizon 2020
SET Plan	Strategic Energy Technology Plan
SHAPE ENERGY	Social Sciences and Humanities for Advancing Policy for European Energy
SSH	Social Sciences and Humanities
STEM	Science, Technology, Engineering and Mathematics

1. Introduction

This collection of reports forms part of the scoping work of the *Energy Social Sciences and Humanities Innovation Forum Targeting the SET Plan (Energy-SHIFTS)*. The objective of Energy-SHIFTS is to further the contribution of Social Sciences and Humanities (SSH) to European energy policy, and especially to support transitions towards more sustainable and equitable energy systems. The project runs from April 2019 to April 2021 and is funded by the EU's Horizon 2020 programme.

A core objective of Energy-SHIFTS is to inform the implementation of the Strategic Energy Technology Plan (SET Plan) which was launched by the European Commission (EC) in 2007. The purpose of the SET Plan is to drive the development and diffusion of low-carbon/efficient energy technologies via strategically guiding the spending of research, development, and demonstration projects (primarily through the Horizon 2020 Framework Programme). As such, the SET Plan plays a major role in framing the landscape of energy policy and research in Europe[1].

Energy-SHIFTS builds directly on previous work within the SHAPE ENERGY project (*Social Sciences and Humanities for Advancing Policy for European Energy*). This project found that SSH are relatively neglected both in terms of their funding within the European research portfolio, and their recognition and use within policy-making (Foulds et al., 2017). There were efforts within the design phase of the Horizon 2020 programme (which are continuing within the current design phase of the Horizon Europe programme[2]) to mainstream or integrate SSH into research commissioning. However, these have had limited effect to date (König, 2019). Energy-SHIFTS therefore builds on the knowledge gained through the SHAPE ENERGY project to develop practical interventions that will further sup-

port the use and impact of SSH within European energy policymaking on research and innovation.

The first phase of Energy-SHIFTS lays groundwork for these practical actions by exploring stakeholder perspectives on key themes within the energy policy landscape. This scoping phase is designed to be participatory and explorative, representing an 'opening up' to diverse viewpoints. This will ensure that the following activities are as relevant and useful to policy stakeholders as possible, as well as being conceptually rigorous and reflective of the state-of-the-art in SSH.

As part of this scoping phase, four workshops were held between April and June 2019, bringing together experts from the research and policy sectors to participate in discussions on four key themes, namely:

1. Social innovation in the energy transition;
2. Inclusive engagement in energy;
3. Carbon intensive EU regions; and
4. Use of evidence in energy policy.

The workshops aimed to generate recommendations for the Energy-SHIFTS project, which will be used (among other things) to shape a process of horizon-scanning (through four working groups) aimed at identifying key issues for future research, and to guide the process of connecting policy-makers with researchers in the Energy-SHIFTS policy fellowship programme. The workshops also generated recommendations which will be used to inform future EU research policy.

This collection is comprised of four reports, one on each theme. The aim of this Editorial is to provide background context to the collection, highlighting the value and purpose of each selected theme, and the intersections between them. This serves to contextualise the recommendations of the reports, which are their key contribution; both to the Energy-SHIFTS project and to European research commissioners. This Editorial begins by outlining the rationale for each of the four themes (section 2), and key features of the workshops' methodological approach (section 3), before providing headline summaries of each report in turn (section 4). It concludes with some reflections on cross-cutting insights regarding the contribution of SSH to energy policy (section 5).

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1   See: https://setis.ec.europa.eu/
2   See: https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en

2. Rationale, themes and structure of the reports

Each of the four reports focuses on one of Energy-SHIFTS' SSH Priority Themes. The selection of these themes was fundamentally guided by our goal of providing strategic input to EC policymaking and especially to the various communities of stakeholders involved in the SET Plan. To do this effectively, we need to speak directly to topics that are currently high on policy agendas. We therefore prioritised three SSH-related themes that are central to the Horizon 2020 (H2020) energy work programme for 2018-2020 (European Commission, 2019), and which therefore represent major areas of EU investment in energy-SSH. Addressing these three themes means that our outputs will be of direct relevance to the research projects supported by this work programme. The themes also have relevance to wider SET Plan priorities, for instance, social innovation can assist in the EU's ambitions for renewables, smart consumption, energy efficiency and transport. At the same time, the selection of themes was guided by the need to engage with cutting-edge SSH, and was informed by the findings of the SHAPE ENERGY project, especially regarding current knowledge gaps. Drawing on this work, and the need for the Forum to tackle underlying issues about the role, use and value of SSH evidence in policy-making, we also prioritised a fourth, cross-cutting theme of 'evidence'. The rationale for each theme is explained in further detail below.

2.1. Social innovation in energy

This was chosen as the sole focus of 2018 H2020 energy funding calls explicitly for SSH researchers (European Commission, 2019, p.199, Call LC-SC3-CC-1-2018). This call builds on previous EU strategies such as the Innovation Union initiative[3] (2010) and Social Investment Package[4] (2013), and on strategic reviews

of the role of research in triggering social innovations across the EU (European Commission, 2017a). Social innovation has great potential in equipping cities for the energy transition, as per the EU's Urban Agenda[5]. Since the EC defines social innovation as "*innovations that are social in both their ends and their means*" (European Commission, 2011, p.9), SSH research can clearly have considerable insight here. Indeed, there is a growing body of energy-SSH literature (e.g. Seyfang and Haxeltine, 2012) that explores the contribution of social innovations. However, energy-related social innovations have been under-utilised to date, with much more done on 'technical' energy innovations. This is therefore a key area where SSH research can inform EU energy policy.

2.2. Inclusive engagement in energy

This is a key priority because if policymaking for future energy production, usage and governance does not engage fully with the wide array of communities it aims to serve, it will be less effective. In the final call text for the H2020 funding call (European Commission, 2019, p.200, Call LC-SC3-CC-1-2020) the language had evolved to speak of 'energy citizenship', but the stated priorities reflected an earlier formulation around inclusive engagement. This priority is also identified in policy strategies such as: A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy[6], Clean energy for all Europeans[7], and the EU's Gender Action Plan 2016-2020 (O'Connell and Gavas, 2015). It is also likely to be especially important within the 'Missions' approach of the forthcoming Horizon Europe programme (which focuses funding on key societal challenges). SSH research offers many lessons on how to produce engagement, co-creation, active participation and energy citizenship beyond early technology adopters and environmental activists, across gender categories, age groups, ethnicities and social backgrounds (e.g. Ryghaug et al., 2018). As well as considering formal, organised engagement processes related to energy projects and innovations, this Energy-SHIFTS theme attends to how the design/development of material objects (e.g. in mobility infrastructures and

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3   http://ec.europa.eu/research/innovation-union/index_en.cfm

4   http://ec.europa.eu/social/main.jsp?langId=en&catId=1044&newsId=1807&furtherNews=yes

....

5   https://ec.europa.eu/futurium/en/urban-agenda

6   http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2015:80:FIN

7   https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans

new energy technologies) serve to include or exclude citizens across such categories.

2.3. Carbon intensive EU regions

This topic was chosen as the sole focus of 2019 H2020 energy funding calls explicitly for SSH researchers (European Commission, 2019, p.200, Call LC-SC3-CC-1-2019). The EU Platform for Coal Regions in Transition[8], launched in December 2017, aims at social goals such as fairness and building new skills. To facilitate the shift away from fossil fuels, there is a need to understand the social, political and economic dynamics of carbon intensive regions, e.g. the 40+ regions across 12 EU Member States that actively mine coal. Leading work in this area includes research by E3G on opportunities and challenges of the transition away from coal, which highlights the importance of including diverse local stakeholders (Popp, 2019). The idea of 'socially-fair energy shifts' for fossil fuel intensive regions, as a strategic priority in the Third State of the Energy Union report (European Commission, 2017b), mirrors interdisciplinary 'energy justice' debates, which SHAPE ENERGY highlighted (Sari et al., 2017). Carbon intensive EU regions as a topic is somewhat different to the two themes above, since it is essentially a geographic delineation. While we focus predominantly on the theme of just transitions in these regions, we note that all our themes intersect with spatial patterns of differentiation, and that processes such as social innovation and efforts at inclusive engagement will also be playing out in these regions.

2.4. Evidence in the energy policy process

This is an important topic because the role and use of evidence in decision-making is often opaque. The EC has previously brought in measures to improve evidence-making, e.g. through its Responsible Research & Innovation agenda[9] and its enhanced open access requirements. However this raises many questions around what 'robust', 'reliable', 'replicable' etc. evidence is. Such questions dovetail with the EC's interests in this

area, e.g. its Expert Group on Indicators which was led by SSH experts[10]. As a Forum designed to catalyse the use of energy-SSH evidence among policy audiences, it is right that Energy-SHIFTS should examine upfront some of the assumptions made about its production and use. Issues of the nature and validity of evidence permeate all debates about the role of SSH in energy policy-making, and such issues must be recognised and addressed as part of any effort to change or improve the use of SSH in policy processes. These questions are also highly relevant for technical research and industry projects. However, SSH researchers have particular interest and expertise in reflecting on social and human components within the production of 'evidence' (Robison and Foulds, 2017), including interrelations, histories and positionality. In drawing on these ideas, Energy-SHIFTS intentionally goes beyond the positivistic social sciences which tend to be based on objective or value-free notions of evidence. Issues of the nature and value of evidence form a central thread that runs through all Energy-SHIFTS activities; this therefore forms the final theme for the Forum's scoping work.

2.5. Aims and structure of the four reports

By choosing to explore these four themes, we ensure that Energy-SHIFTS activities and outputs will be able to speak to current policy debates from a well-informed standpoint. Crucially, our activities will be designed with a recognition not only of areas of consensus on these topics, but also with an awareness of unresolved issues, tensions and divergent perspectives. This interest in differentiation and diversity is embedded in the design of the workshops, and in the reports themselves. At the same time, our work does not simply accept policy narratives and prevalent terminology (such as social innovation, for example) at face value. Rather, our scoping workshops provided an opportunity for critical reflection on these discourses. The workshops asked searching questions such as: what are the meanings, scopes and connotations of the concepts currently used in energy policy? What are their boundaries and what do they exclude? How can approaches from SSH help to refine or reframe these ideas? These questions recur throughout the four reports in this collection.

The four reports follow a broadly consistent structure. After introducing their aims and context, each report includes a literature review which establishes

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8   http://europa.eu/rapid/press-release_IP-17-5165_en.htm

9   https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation. However, this will not form an explicit part of the Horizon Europe programme.

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10   http://ec.europa.eu/research/openscience/index.cfm?pg=altmetrics_eg

the context of the workshop theme within SSH debates, and shows how the workshop builds on existing knowledge (and/or addresses knowledge gaps). Each report then provides relevant information about the design and delivery of the workshop, before discussing its findings, and concluding with a summary of recommendations for the Energy-SHIFTS project and for EU research funding programmes (and, in some cases, for other stakeholders).

In writing these reports, we were keen to ensure that they were accessible and included tangible outputs for non-experts. The target audience is cross-sectoral and cross-disciplinary. It is for these reasons that the reports all have concise Executive Summary and Recommendations sections which can function as standalone resources. These recommendations are of relevance to how research projects are designed and conducted – such as the Energy-SHIFTS project itself (including its various internal and external activities), as well as other energy projects and platforms, and also of relevance to policy-makers and research funders, such as the European Commission.

3. Methodological approach: four scoping workshops

These reports are based on four scoping workshops which were held between April 2019 and the end of June 2019. The workshops aimed to ensure participation from a range of SSH disciplines (and some representation from Science, Technology, Engineering and Mathematics disciplines), as well as from policyworkers at various levels and from both governmental and non-governmental institutions. Each workshop was informed by an initial literature review which identified key issues, debates and knowledge gaps around its particular theme. The design of each workshop was slightly different, based on its specific aims; however, all four adopted a participatory approach in keeping with the goal of scoping diverse perspectives.

Each workshop benefited from the participation of one or more Early Stage Researchers (ESRs). Engagement with ESRs is an important goal of the Energy-SHIFTS project as a whole. ESRs provided valuable support during the workshops, such as carrying out audio and video recordings, as well as being active participants in their own right. Some also wrote reflective blogposts based on their experiences of the events. The contribution of the ESRS is acknowledged in the relevant reports. Some workshops also benefited from the valuable support of partners outside the Energy-SHIFTS project, notably the European University Association, Energy Cities and Bankwatch.

Ethical considerations were embedded in the workshop design, as in all stages of the Energy-SHIFTS project. The methodologies were guided by the project's Ethics Guidelines (Energy-SHIFTS, 2019) and used information sheets and consent forms to ensure informed consent for all collection, storage and use of data.

As well as the four reports in this collection, a range of workshop outputs such as videos, photos and blogs can be viewed on the Energy-SHIFTS website[11].

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11   See https://energy-shifts.eu/

4. Introducing the four scoping reports

This section provides a brief overview of the content of each thematic report.

In the first report, de Geus and Wittmayer (2019) explore the topic of "Social Innovation in the Energy Transition: Examining diversity, contributions and challenges". Their review of literature finds that most work on social innovation is concerned with community-based energy initiatives, with a relatively narrow focus on household consumption and production. Studies discuss how social innovation might have diverse outcomes, including accelerating the energy transition; addressing democratisation and equity; mainstreaming new practices; and creating new actor configurations and relations. Then, drawing on ideas from transition studies, de Geus and Wittmayer argue that the discussions within the workshop centred on a particular phase within the energy transition: acceleration. This was apparent in participants' focus on the changing role of incumbents, and how equity and justice can be safeguarded as innovations move out of their 'niche' position. Other questions concerned how to foster democratic innovations, as well as the role of the municipality, and the challenges of moving from small-scale experiments to whole-system transitions. Their recommendations include suggestions for expanding the research agenda on social innovation beyond community energy, and ways to ensure themes (such as the role of municipalities) are embedded within the design of Energy-SHIFTS activities. They also call for diverse research approaches, including experimental action research/ participatory research, transdisciplinary research, longitudinal studies and cross-case comparison.

Suboticki et al. (2019) focus on the subject of "Inclusive engagement in energy", with particular attention to issues around low carbon transport solutions. The literature review provides a groundwork by examining a range of related theoretical concepts, such as energy poverty, energy justice and energy vulnerability, and how these are implicated in various energy system changes (such as the shift to renewables, and the roll-out of smart technologies). It also examines diverse understandings of inclusion and engagement, and the various methods through which these can be pursued. The workshop further developed these ideas by exploring participants' understandings of inclusive engagement through discussion of specific contexts and cases (especially relating to transport and mobility). The report provides insights into practical tools and measures for implementing inclusive engagement initiatives, but also, crucially, reflects on challenges and limitations to such efforts. Key themes include the need for ongoing dialogue and trust-building, which inevitably demand significant time investment, and the tensions of this requirement with the urgent temporalities of energy transitions. An important lesson for researchers and policyworkers is that inclusive engagement is not a one-off exercise, but needs to be built into all stages of a project, and may indeed take different forms (with different participants and methodologies) during different phases of activity.

Amon and Wagner (2019) explore the topic of "Carbon Intensive EU regions" (especially in Central and Eastern Europe (CEE)) and ask: How can Social Sciences and Humanities contribute to the acceleration of a truly just transition? Their review of literature highlights how a particular notion of the 'Just Transition' emerged from the Labour movement, and how this concept has been used to link social issues such as employment and skills with environmental agendas around energy transitions; however, these goals are not always complementary and have to be carefully balanced within policy processes at the regional, national and international scales. Fundamentally, however, the idea of a just transition serves to illuminate the deeply normative or moral questions that surround any energy system transformation. Building on this, the highly creative and participatory workshop benefited from strong representation from CEE countries and especially from non-governmental organisations (NGOs) active on these issues. Discussions explored the complex and contested notions of a just transition; the various forms of inequality experienced within carbon intensive regions; and the capacity of 'remedial' policy interventions to mitigate these. Participants then creatively and collectively explored their own visions of just transitions, and used their experiences to generate a series of recommendations for research and policy communities, including ways SSH researchers can help to build the capacity and expertise of communities and NGOs.

In the final report, Royston and Foulds (2019) focus on "Use of evidence in energy policy: the roles, capacities and expectations of Social Sciences and Humanities". Their review of literature highlights how Social Sciences, and to an even greater extent, Humanities, are relatively neglected in funding programmes, and often relegated to a secondary or instrumental role, leading to a reliance on over-simplistic models of social phenomena, among other problems. Energy-SSH could be better used, not only to refine these models,

but also to challenge dominant assumptions and agendas. Building on this, the workshop explored particular mechanisms through which SSH methods and evidence are systematically under-valued, and explored the role of SSH evidence in three different processes of research-policy engagement: Evaluations, Reviews, and University education, research and innovation.

The report's recommendations engage with issues of diversity and differentiation within the 'SSH' category; the need for meaningful (non-tokenistic) inclusion of SSH; the roles of experts; and the potential of SSH to generate 'deep innovation' in how energy is understood and governed.

5. Reflections on cross-cutting themes

While each workshop takes a distinct topic as its focus, the four reports reveal some (interconnected) themes that cut across these topic areas.

5.1. Equity and justice

Equity and justice are obviously key themes throughout the report on inclusive engagement (Suboticki et al., 2019), which raises a range of questions around the nature of inclusion and exclusion and how these are produced and reproduced within energy systems and policies, including through often-ignored processes of 'micro-political exclusion'. Similar issues are also explicitly explored and unpacked by Amon and Wagner (2019) in their report on just transitions, which delves into the social and ethical complexities of notions of justice and the differentiated and unequal impacts of energy system transformations. However, related concerns are also raised within the report on social innovation (de Geus and Wittmayer, 2019), especially issues around differential participation in, and benefits from, social innovations; e.g. gender-based inequities. Furthermore, as Royston and Foulds (2019) show, issues of equity, justice, power and vulnerability are also among the topics most commonly suggested by SSH experts as areas where SSH could and should be contributing more to energy policy. Their report highlights how conventional economistic models of energy systems fail to engage with these issues, and how SSH can offer much-needed critical and normative perspectives; a proposal that is clearly evidenced by all the reports in this collection.

5.2. Innovation in many incarnations

De Geus and Wittmayer's (2019) report discusses the idea of social innovation as something that is often ill-defined, that overlaps with other types of innovation, and is perhaps being used as a policy and research buzzword. They show how the term has tacit boundaries or emphases, such as through the literature's relatively narrow focus on household consumption/production and community initiatives. They also draw attention to embedded normativity, and the fact that some researchers and policy-makers define social innovation as inherently good, begging the question of how they would conceptualise a social 'innovation' that did not further their desired goals. Echoing these themes, innovations of many kinds recur throughout the reports on inclusive engagement (for example, in considering the equity impacts of electric vehicles) and carbon intensive regions. In the latter case, we are presented with the rarely-seen flip-side of innovation: the places and communities who represent or rely on an 'old regime', and the social and economic fall-out of energy innovations. At the same time, innovations of various kinds (such as measures to reskill former fossil-fuel workers) form essential components of a just transition. Taking another angle, Royston and Foulds (2019) problematise the pervasive idea of research as innovation for economic growth, which underpins EU research funding, and the implications of this, in terms of the instrumentality of (SSH) evidence in service to narrowly-defined economic goals. They draw on challenging perspectives from the scoping workshop on the theme of evidence to develop the idea of SSH as offering 'deep innovation', reframing these dominant assumptions and agendas.

5.3. Not one but many energy transitions

Closely related to these ideas about equity and about the multi-faceted nature of innovation is the idea that there is no such thing as a singular 'Energy Transition'. In this collection, de Geus and Wittmayer (2019) shed light on how an energy transition has many different actors and phases; transitions for incumbents are not the same as for innovative experiments. Other reports complement this by suggesting there are many different concurrent and interconnected transitions within energy systems. These are spatially differentiated; as Amon and Wagner (2019) show, transitions occurring in carbon intensive regions are not the same as those happening in other regions. They are differentiated in numerous other ways as well, with fault-lines of gender, economic inequity and differentiated access and participation (as noted above, and discussed in detail by Suboticki et al. (2019)). In a globalised energy system, the group of 'stakeholders' in European energy transitions potentially includes the entire world population. It is thus apparent that there is no single agreed-upon vision or route-map for an energy transition that all

'stakeholders' agree upon. In this context, Royston and Foulds (2019) demonstrate that SSH have a vital role to play, through their emphasis on recognising diverse perspectives; exploring complexity within transitions; and engaging with normative questions about what energy systems and their transformations should look like.

5.4. The contribution of energy-SSH to policies on 'energy technology'

This latter point about the contribution of SSH leads directly to a final overarching theme of the workshop reports. The SET Plan is explicitly concerned with technologies; arguably in a way which overlooks the nature of technologies as fundamentally social phenomena (as highlighted by Royston and Foulds, 2019). The other three reports in this collection provide further evidence of how deeply energy technologies are entwined with social processes. For example, social innovations such as energy games and feedback initiatives are bound up with technological innovations such as smart energy devices. In carbon intensive regions, changes in infrastructures of production are inseparably connected to social shifts such as migration, populism and the role of Labour movements. Meanwhile, new technologies such as electric vehicles, smart meters and renewable energy sources create both challenges and possibilities for inclusive engagement. This body of evidence, drawing both on extensive literature reviews and new data from our participatory exercises with diverse stakeholders, serves to establish beyond any doubt the necessity for policy to take seriously the social issues embedded in the aims of the SET Plan and other energy strategies, and the concomitant need for SSH evidence and expertise.

However, this collection shows that simply asking questions about 'social topics' is not enough. There is also an urgent need for SSH to contribute to the *processes* through which these topics are understood and thus the ways in which they are addressed by policy. For example, throughout the reports, the importance of unpacking terms (including prevalent buzzwords) and recognising complexity (including within causal relationships) emerged as a key point, and an area where SSH can provide a valuable contribution. In addition, the reports bring out the value of a historically-aware perspective, to complement the emphasis on the future that often dominates policy discourses. For example, the history of past transitions in CEE countries emerged as a key influence on future energy transitions (Amon and Wagner, 2019).

Finally, all four reports highlight the need for active and reflective normative engagement, rather than a passive acceptance of tacit and embedded assumptions within policy, which are often resistant to change. For instance, the reports give centre-stage to questions such as: is innovation always good? What should inclusive engagement look like? What do we mean by a just transition? What constitutes good evidence? As part of this, they show how SSH can make a particular contribution in attending to groups that may be 'left behind' (Amon and Wagner, 2019) or 'othered' (Suboticki et al., 2019) and voices that are often unheard within policy processes.

In summary, diverse energy-SSH disciplines can contribute to a deeper understanding of the themes highlighted in this section (equity and justice; innovations; and transitions) as well as many other issues raised by these reports that are of direct relevance to energy policy within and beyond the EU. The insights of these four scoping reports are fundamentally inspired and informed by SSH approaches: critical, reflexive, normative, and engaging thoughtfully with diversity and complexity within all aspects of energy systems. A key lesson of this collection is that SSH do not just offer new and important knowledge content, but also different *ways of doing* research, that can and must inform future policy-making on energy issues.

6. Acknowledgements

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