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Live energy policy challenges: *questions for the Social Sciences & Humanities*

Energy-SHIFTS

ENERGY SOCIAL SCIENCES & HUMANITIES INNOVATION FORUM TARGETING THE SET-PLAN

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Executive summary

This report provides an overview of important live policy challenges relating to the social and human aspects of energy transitions, as identified by 39 policyworkers from across Europe. It draws on applications that these policyworkers submitted in Autumn 2019 to participate in a Policy Fellowship programme as part of the EU-funded Energy-SHIFTS project (*Energy Social sciences & Humanities Innovation Forum Targetting the SET-Plan*). The Policy Fellowship programme matches each of 20 selected policyworkers working on energy transitions across Europe and Horizon 2020 countries with 4-6 researchers from the Social Sciences and Humanities (SSH). The aim is to create a reciprocal connection that results in energy-SSH insights supporting policy work and 'live' policy feedback reaching researchers. By reviewing the key policy questions that policyworkers submitted in their applications, this report aims to highlight important challenges currently experienced by energy policyworkers across Europe, and to provide useful insights for SSH scholars who wish to carry out policy-relevant research.

While the issues raised are of course complex and overlapping, the report discusses the policy questions using a five-part structure of thematic categories. These are: Citizen Engagement; Social Acceptance; Just Transitions; Behaviours; and Human Capital. Under the thematic category of Citizen Engagement we discuss the role of local authorities in engaging with citizens, developing clearer roles between policymakers and citizens, incorporating citizen dialogue into the implementation of regulatory frameworks, and engaging with consumers to affect their behaviour. As regards Social Acceptance, the acceptance of energy policies, and their impacts, by both citizens and businesses were mentioned. Under the thematic category of Just Transitions we found that inclusive decision-making, energy poverty, and access to the benefits of low-carbon technologies were key concerns. Applicants also indicated an interest in understanding Behaviours (framed in terms of the actions of consumers) with regards to energy transitions, and how such behaviours and motivations might be influenced through policy. Under the thematic category of Human Capital, we note issues relating to economic security for individuals and communities working in the traditional energy sectors, reskilling workers, and change in organisational processes, structures and capacities. Finally, we discuss topics that lie outside of the five thematic categories, namely: legal frameworks, the building sector, and energy security.

Throughout the report, we are mindful of avoiding a reductionist interpretation, which could imply that the five thematic categories (which have, to some extent, arisen through certain terminology dominating mainstream policy conversations) are the only, or most important, way to conceptualise live energy -SSH related policy challenges. A clear message is that underneath each of these headlines is a myriad of issues which policyworkers are grappling with, with multiple opportunities for SSH researchers to provide responsive insights on current policy priorities, and indeed to offer alternative or challenging perspectives. We end this report by reflecting on the policy-research interface and drawing out key insights for the Energy-SHIFTS Policy Fellowship programme, notably the importance of recognising the diversity of each Fellows' interests, facilitating the evolution of policy priorities, and supporting innovative research-policy connections throughout the programme's implementation in 2020.

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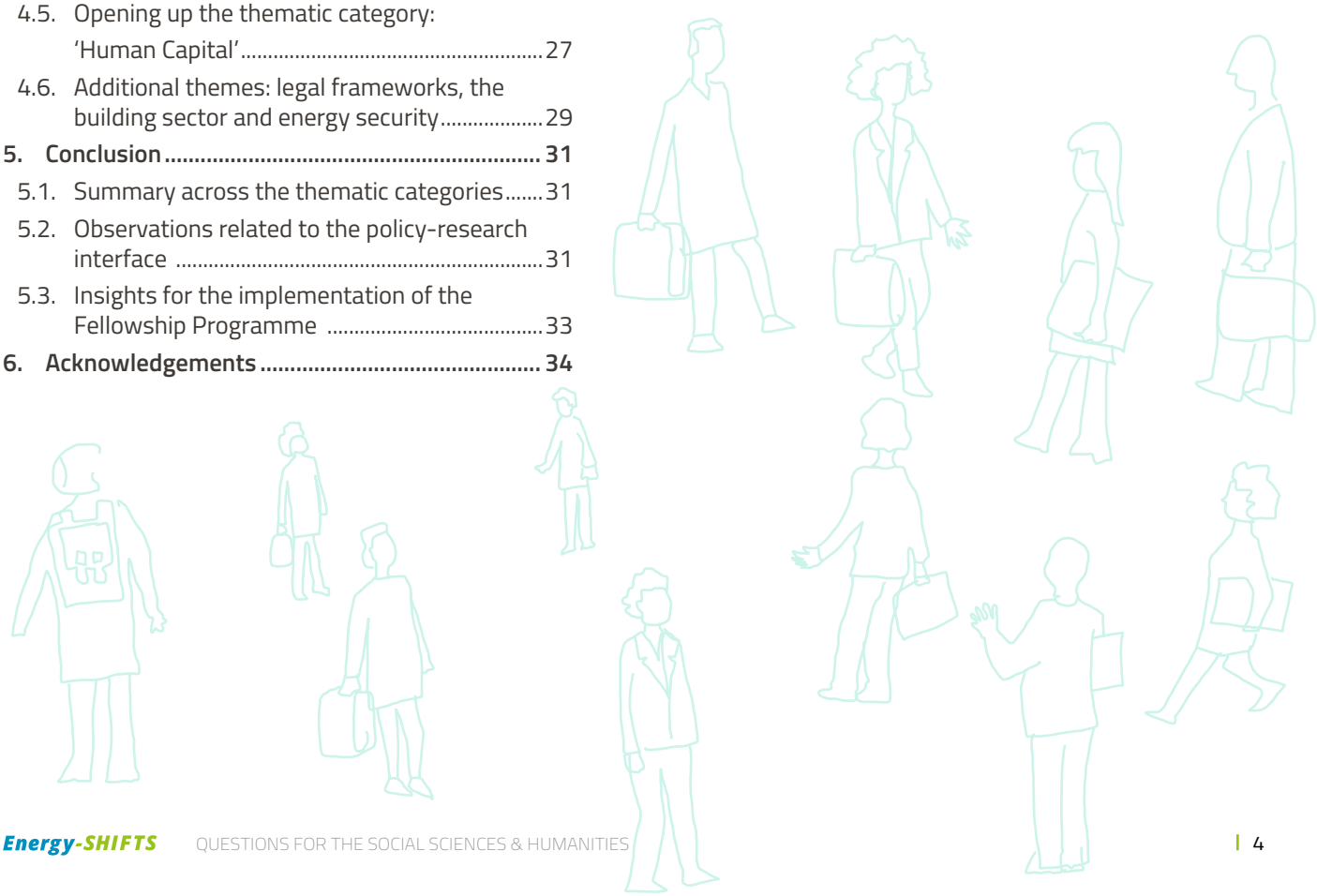


1. Introduction

Energy transitions are unfolding in Europe, with the European Commission stating it wants to become the world's first climate-neutral continent[1]. As political ambitions are turned into on-the-ground policy, new dilemmas and questions come into view. Many, if not most, of these questions fundamentally relate to topics explored across the Social Sciences and Humanities (SSH) since they concern societal change in one form or another. Everyone working on the energy transition - from the European level to national or regional bodies, and from governments to Non-Governmental Organisations (NGOs) or the private sector - is treading uncharted territory. Academia has an important role to play in navigating this, as well as much to learn from those working to put theory into practice. But how best to connect the worlds of energy policy and energy-SSH research?

This report is an output from the EU-funded Horizon 2020 Energy-SHIFTS project (*Energy Social sciences & Humanities Innovation Forum Targeting the SET-Plan*). To offer counterweight to dominant Science, Technology, Engineering and Mathematics (STEM) perspectives, Energy-SHIFTS spearheads efforts to ensure SSH research feeds more tangibly into energy policy priorities. As well as a range of open-access guides and resources, and high-level events, Energy-SHIFTS is running two core activities over 2019 and 2020 which will provide both immediate insights for the short-term directions of EU energy policy as well as foundations for longer-term mechanisms that will enable evidence-based energy-SSH insights to reach the 'policy front line'. One of these core activities is its Policy Fellowship programme (the other being its set of four Working Groups[2]). The Policy Fellowship programme builds on the assumption that tailored knowledge exchange benefits both research and policy. By connecting policyworkers directly to SSH researchers, the programme aims to: engage policyworkers with in-depth energy-SSH insights; give SSH academics the opportunity to gain insights into 'live' policy issues as well as increase the direct impact of their research; and build future capacity for research-policy dialogue.

The Policy Fellowship programme, which is described in detail in Subsection 2.1, essentially enables one-on-one dialogue between policyworkers (Policy Fellows) and SSH researchers (Policy Associates), with the latter having been specifically chosen for their expertise of relevance to the current policy challenges involved in the Fellows' programmes of work. The Energy-SHIFTS project and the researcher-policy dialogues it facilitates are situated within the European context (Fellows and Associates must be based in a country eligible for funding via the European Commission Framework Programmes) but the Policy Fellowship programme was deliberately open to those working at all levels of policy, from very local to international, and many of the themes touched on are arguably of relevance across the Global North or even more broadly.

This report is the first in a set of three reports from the Policy Fellowship programme to be delivered to the European Commission. It is intended to provide a first look at a range of SSH-relevant challenges that policyworkers around Europe are actually facing (hence 'live challenges') in designing, implementing or influencing energy policy, including portraying these in their own words. Whilst it represents an illustration rather than an exhaustive listing of such challenges, nevertheless it demonstrates their rich breadth, and we have structured the report as a useful resource for energy-SSH researchers looking to explore 'routes in' for demonstrating the relevance of their work to policy. It provides examples which also may be of use to policyworkers looking to broaden the range of SSH questions they explicitly consider in their work. It enables a first look at broader questions related to the policy-research interface (see Section 5) including: how do the framing of challenges compare to dominant SSH research narratives or critiques?; and what role is SSH research seen to be playing in informing the policy 'front line'?

1 https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

2 These are organised around SET-Plan themes: (i) Renewables, (ii) Smart Consumption, (iii) Energy Efficiency, (iv) Transport. For more details on the Working Group methodology, see Foulds, C., Bharucha, Z.P., Krupnik, S., de Geus, T., Suboticki, I., Royston, S. and Ryghaug, M., 2019. *An approach to identifying future Social Sciences & Humanities energy research priorities for Horizon Europe: Working Group guidelines for systematic Horizon Scanning*. Cambridge: Energy-SHIFTS. For more details on the role of SSH in the SET-Plan see: Dufour, E., Lisi, V. and Robison, R. 2019. *A guide to the SET-Plan: Including the role of the Social Sciences and Humanities*. Cambridge: Energy-SHIFTS

Ultimately it demonstrates the very real SSH-related policy challenges that professionals and citizens are working on every day (despite different sectors, histories, cultures and geographies), and which we argue would benefit from greater support.

This report is structured as follows: in Section 2, we outline the main details of the Policy Fellowship programme as well as the recruitment process for Fellows. Section 3 discusses how data from that recruitment process fed into this report, and in particular how this data was categorised and discussed. In Section 4, we share these discussions of 'live' energy policy questions of European policyworkers across five thematic categories, namely (i) Citizen Engagement, (ii) Social Acceptance, (iii) Just Transitions, (iv) Behaviours, and (v) Human Capital, as well as gathering some into a subsection on (vi) Additional themes. In Section 5, mindful of the diversity within and entanglements between the thematic categories we discuss critical observations across them, and the knowledge needs for energy transition policy in Europe that emerge from our analysis.

The challenges posed by our 20 selected Fellows will be revisited together with insights generated from dialogue with their matched Policy Associates, and their reflections on the process, in a report forthcoming in late 2020. A toolkit aimed at supporting initiatives similar to the Policy Fellowship programme will also be published in 2021.

2. The Energy-SHIFTS Policy Fellowship Programme

2.1. Objectives and activities

The Energy-SHIFTS Policy Fellowship Programme is a development programme for energy policy professionals, created and currently being implemented as part of a Horizon 2020 project. The Policy Fellowship Programme links 20 energy policyworkers from across Europe to researchers working in the Social Sciences and Humanities (SSH). For the programme, eligible policyworkers (as opposed to 'policymakers') are understood as anyone working at in an energy policy-facing role in an EU or Horizon 2020 Associated Country[3], and who are thereby, in some way, (in)directly influencing EU energy policy making. We considered a broad variety of policyworkers to be eligible, including "*elected officials, civil servants, European Commission staff and civil society actors* (NGOs, *think tanks, trade associations and advocacy organisations*) *working on the energy transition and based in the EU or Horizon 2020-eligible countries*"[4]. These criteria were formulated broadly, to recognise the diversity of actors that are influencing European energy policy.

The programme implementation consists of recruiting and selecting Policy Fellows, matching them to around five Policy Associates (i.e. the SSH researchers), and supporting their knowledge exchange and development over the course of several months - see Figure 1. The programme builds on the experience of other similar programmes, in particular the CSaP Policy Fellowships as organised by the University of Cambridge since 2011[5].

Fig 1. Overview of the Fellowship process.

3 Horizon 2020 Associated Countries: Albania, Armenia, Bosnia and Herzegovina, Faroe Islands, Georgia, Iceland, Israel, Moldova, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Tunisia, Turkey, and Ukraine.

4 See: https://energy-shifts.eu/call-for-applications-energy-shifts-policy-fellowship/

5 See: http://www.csap.cam.ac.uk/about-csap/

The objectives of the programme are three-fold:

1. Deeply engage diverse policyworkers with energy-SSH insights, to increase understanding of social dimensions and social challenges in live energy policy projects.
2. Give SSH academics from a range of disciplines, geographic regions, and career stages, the opportunity to gain real insights into 'hot' policy issues and play a role in the policymaking process.
3. Build future capacity for research-policy dialogue through bringing together policyworkers and SSH academics for in-depth 1-to-1 interactions.

The first part of the process, recruitment (discussed in detail in Subsection 2.2 below), included an open call which described in particular how policyworkers could benefit in specific ways from taking part in the programme - see Figure 2.

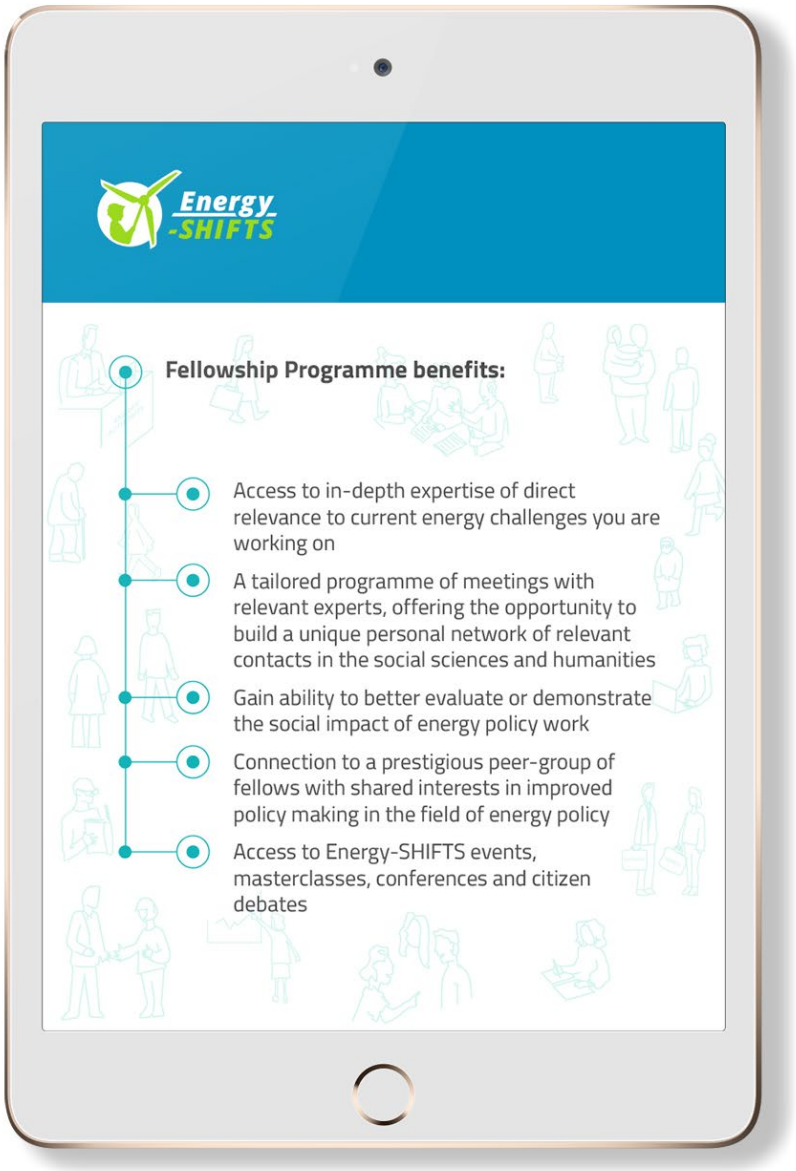


Fig 2. Benefits of the programme. Invitations and adverts for the Energy-SHIFTS Policy Fellowship opportunity highlighted a number these[4].

2.2. Recruitment process

In the autumn of 2019, a campaign was organised calling for eligible policyworkers to apply to the programme. The programme was promoted through a social media campaign, by Energy-SHIFTS consortium members (based in the UK, Netherlands, Belgium, Spain, Norway, and Poland), at events, and in related networks. Interested candidates were asked to submit an online application form, in which they provided basic information, their professional background, motivation and policy questions of interest, as well as their CVs. Besides recruitment through the open call, seven professionals received direct personal invitations to participate in the programme due to the relevance of their work and expertise to the goals of Energy-SHIFTS. These candidates also filled out the online form to identify the energy policy questions that they wanted to work on.

Key questions in the form included:

Q1. Why does participating in the Energy-SHIFTS Policy Fellowship Programme interest you? Please describe your aims/objectives. (Maximum 250 words)

Q2. Please give some brief background of any energy policy programme or initiative you are working on which you wish your fellowship to feed into, and any associated strategic objectives. (Maximum 250 words)

Q3. Key policy 'problem' for discussion: Based on the above, please identify one or more key 'problems' or questions you would use as a starting point for discussion with SSH researchers during your meetings. Examples could be: 'The social dimensions of moving away from gas for cooking,' or 'How can local authorities promote citizen engagement in energy?' (No word limit)

Q4. Rationale: Please explain how discussion around the problem(s) you have identified above would feed into your programme of work and/or why they are important and/or difficult to address. You may wish to list 3-6 short sub questions as discussion points during the policy fellowship, posed in everyday language. If your application is successful you will have the opportunity to revise these questions ahead of any meetings. (Maximum 250 words)

As discussed in more detail in Section 3, the responses to Q3 and Q4 above primarily fed into this report. The final cohort of 20 Policy Fellows was selected by the consortium based on four quality criteria (Connection, Scale, Innovation and Longevity, see footnote[6] for fuller details) and diversity ambitions (across gender, geographical location, and organisation type).

6 Connection: *Extent to which the question proposed by the applicant is a question that is reflected in Energy-SHIFTS' networks*; Scale: *Extent to which the applicant is in a position to apply the expertise gained in the fellowship to public interest and create public value*; Innovation: *Extent to which the policy question is part of the forefront of policy-making and pushes alternative/non-mainstream policy applications of SSH*; Longevity: *Extent to which the applicant has relevant experience, capabilities, enough time to take advantage of this opportunity, and aims to stay connected to academia.*

3. Data and methods used in this report

Fig 3. Word Cloud formed from the 'Keywords' given by eligible applicants, representing their professional interests related to the human aspects of energy (they gave around 3-5 words or short phrases each). Larger size indicates greater prevalence. Applicants were given the examples of carbon taxes; citizen engagement; fuel poverty; urban design; and social acceptance of energy innovation.

3.1. Application form data

To give insights into the initial challenges and questions that policyworkers around Europe are facing in designing, implementing or influencing energy policy, this current report analyses data from the submitted application forms to the Energy-SHIFTS Policy Fellowship programme i.e. gathered before their engagement with SSH researchers as part of the Fellowship. We primarily drew on the data that applicants provided on the key policy problem(s) they wished to discuss (see Q3 and Q4, Subsection 2.2 above). One limitation of this data collection method was that there was no minimum amount of words which meant - while all applicants filled out all the questions - some chose to provide very succinct answers, as can be seen from the quote visualisations in Section 4 (Figures 7 - 12). As highlighted throughout this report, many applicants chose to give multiple energy policy questions that they encountered.

Out of 50 people who filled in the online form, 11 candidates were not eligible. The reason for this was that these applicants were in fact primarily academic researchers themselves, rather than policyworkers. In four cases, these were researchers from STEM disciplines interested in engaging more fully with SSH, which raises an interesting possibility of such schemes for connecting different disciplines across academia, but this was not the purpose of this programme. Since we were interested in the challenges experienced by those in policy-facing roles, we only used the 39 application forms of those eligible. Permission to use the (appropriately anonymised) application form data in public outputs was sought in the application form.

3.2. Categorisation of applications

Of these 39 applications, 20 became our Energy-SHIFTS Policy Fellows (as explained above). These 20 Fellows were grouped under five 'thematic categories'; this was to allow smaller clusters to be overseen by particular Energy-SHIFTS partners, both giving Fellows named contact points but also enabling some smaller cross-fertilisation group discussions as part of the programme. The groupings were based on an inductive

analysis of headline themes in the Fellows' application forms, for example identifying some of the common framings, or common language used by several Fellows - see Figure 3 for a visual representation of applicants' 'Keywords'. However, we note that (as discussed later) there was significant overlap and blurring of boundaries across the applications, and thus a certain amount of pragmatism was also needed to divide the cohort into five suitably sized groups.

The five thematic categories were given short headlines, as well as slightly expanded descriptions which could be used, for example, when recruiting the researchers (Policy Associates) the Fellows would be in dialogue with[7]. Thus the expanded descriptions aimed to open the door, to some extent, to a wider range of researchers than the category title alone may do. These are given in Table 1, in order of the category with the most applications assigned, to the least.

This allocation does not mean Fellows will not explore questions across other categories, indeed we expect them to do so. Not only did Fellows often present a range of - sometimes interconnected, sometimes fairly separate - questions they wanted to explore, but the very process of the Fellowship is designed to introduce new perspectives from across SSH, and thus potentially new questions. This is why the direct dialogue with, matching, facilitation and oversight by the Energy-SHIFTS consortium plays an important role. However, since the programme is logistically structured into groups around these five thematic categories, we have chosen to use them as primary points of exploration in this report (in Subsections 4.1 - 4.5). Usefully, this also allows description of how these headlines or catch-all phrases, such as 'behaviours', actually derive from a nuanced array of questions, and for the range of SSH knowledge which might be linked to the categories to be identified.

Table 1. The five thematic categories our Policy Fellows were assigned to.

Thematic category	Expanded description
Citizen Engagement	Including organising active citizen participation and citizen dialogue at different governmental levels, conveying public trust, and how to shift from a stakeholder approach to forge high-level agreements, to a democratic participatory approach.
Social Acceptance	Including how to communicate with citizens and businesses, and understand NIMBY-related[8] issues.
Just Transitions	Including creating policy instruments for alleviating energy poverty, making solar energy accessible, and fostering an inclusive energy transition.
Behaviours	Including accelerating low-carbon lifestyles, anticipating long-term behavioural changes, and designing policies on behavioural or social practice aspects.
Human Capital	Including implications for employees in the energy sector and readiness of consumers for changes in the energy market.

7 https://energy-shifts.eu/policy-associate-call-applicants/

8 'Not In My Backyard' (NIMBY) has been used to describe an aversion to, for example, new renewable power generation being installed near one's home, even when one may agree in principle with carbon cutting measures.

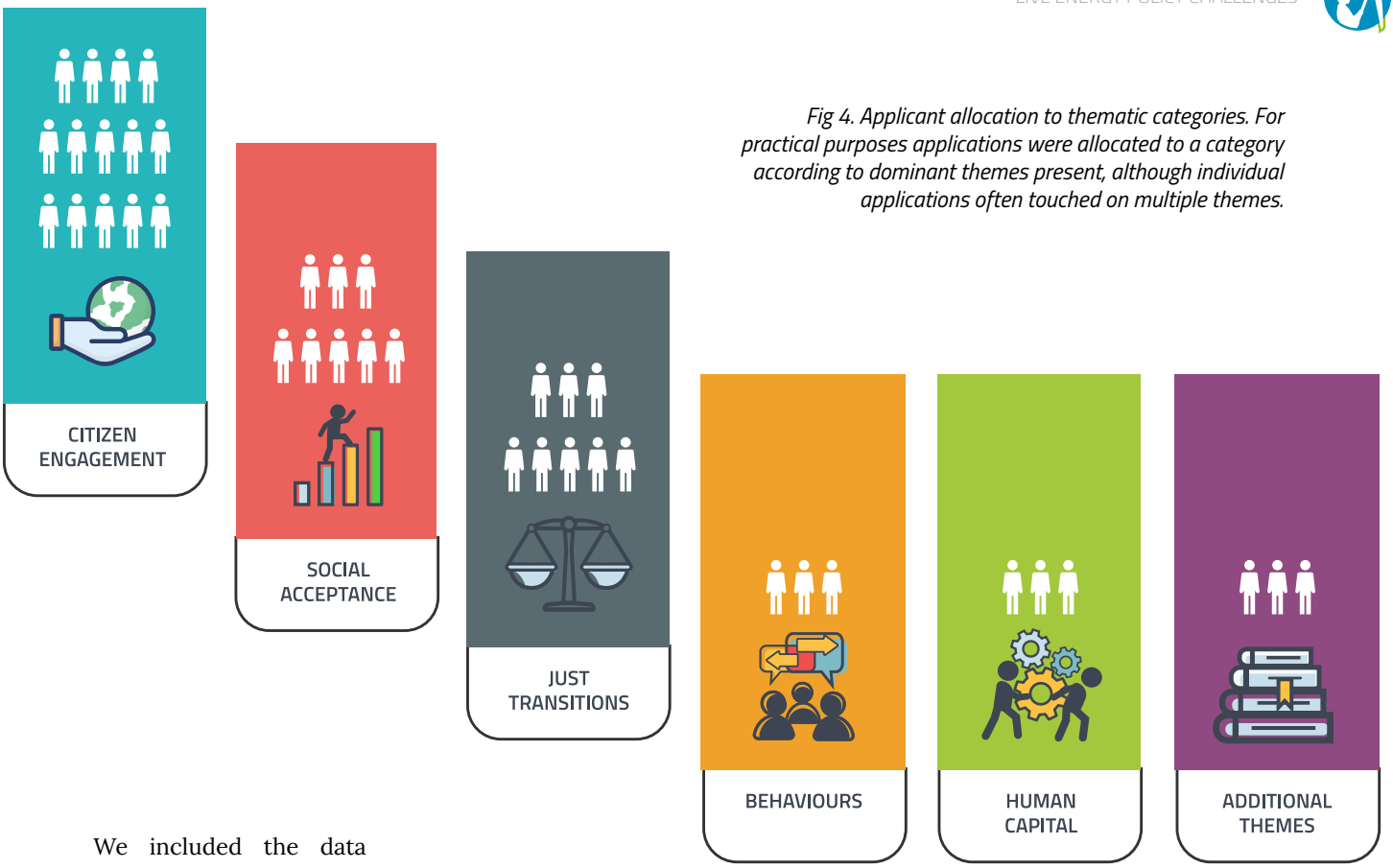


Fig 4. Applicant allocation to thematic categories. For practical purposes applications were allocated to a category according to dominant themes present, although individual applications often touched on multiple themes.

We included the data from the 19 applicants who were not offered Fellowships in this process, assessing if and how their application form data also spoke to the five thematic categories, or indeed raised up additional themes - this ultimately led to the categorisation of application data as shown in Figure 4.

3.3. Analysis for the present report

For the present report, each thematic category is unpacked in Subsections 4.1 to 4.5. In each of these Subsections, direct quotes are featured at the beginning, in order to represent policyworkers' insights in their own words. While these are primarily the full responses to Q3 (their key policy 'problem' for discussion), in some cases, where extra clarification was helpful, we have added details from Q4 responses. There was a tension here regarding whether to split the quotes down (since they often cover multiple themes) or keep them 'entire'. We have opted for the latter, as we felt it was important to see how applicants often brought together a number of different themes.

Each thematic category section also provides a discussion, which is structured in three parts. First, we review the main empirical areas covered by the questions. We then continue by providing commentary on this thematic category (including raising alternative or supplementary questions which may not have been articulated by applicants) and use this to draw out some overarching questions for SSH researchers. Finally, we move beyond the thematic category headline to point out what other questions were present in the input from applicants assigned to that category. These are issues that were mentioned either alongside or as being interrelated to the headline category, but which represent quite different areas of SSH research (for example, a question concerning 'energy poverty' being mentioned in an application which we categorised under the thematic category 'social acceptance'). Finally, three applicants' policy questions did not fall within any of the five main thematic categories. These additional questions are described in Subsection 4.6, and cover: legal frameworks; the building sector; and energy security.

Note that we are mindful of avoiding a reductionist reading of these results, which could imply that the five most common categories (which have to some extent arisen through certain terminology being more embedded into current mainstream policy conversations) are the only, or most important, ones to deserve attention. As discussed in Section 5, in fact a clear message is that underneath each of these headlines is a myriad of issues which policyworkers are grappling with.

3.4. Applicant characteristics

To provide context to our discussion, we review here the data that applicants provided on their gender, location, organisation type and energy policy area.

Out of the 39 eligible applicants, 16 identify as female, 22 as male, and one application consisted of a joint team of two females and one male. With regards to organisation type, two applicants indicated they work at a European governmental institution (e.g. European Commission), nine at a national government, seven at a local, regional or municipal authority, nine at a Non-Governmental Organisation or think tank (e.g. advocacy organisation, charity), four at a private sector organisation or association representing private interests (e.g. trade association), two at a research or academic institution, three self-identified as other (self-employed entrepreneur, a cooperative and team working on solar energy within a private business). The two applicants working at research institutions were both very directly involved in informing policy. The sectors in which the applicants work are visually depicted in Figure 5.

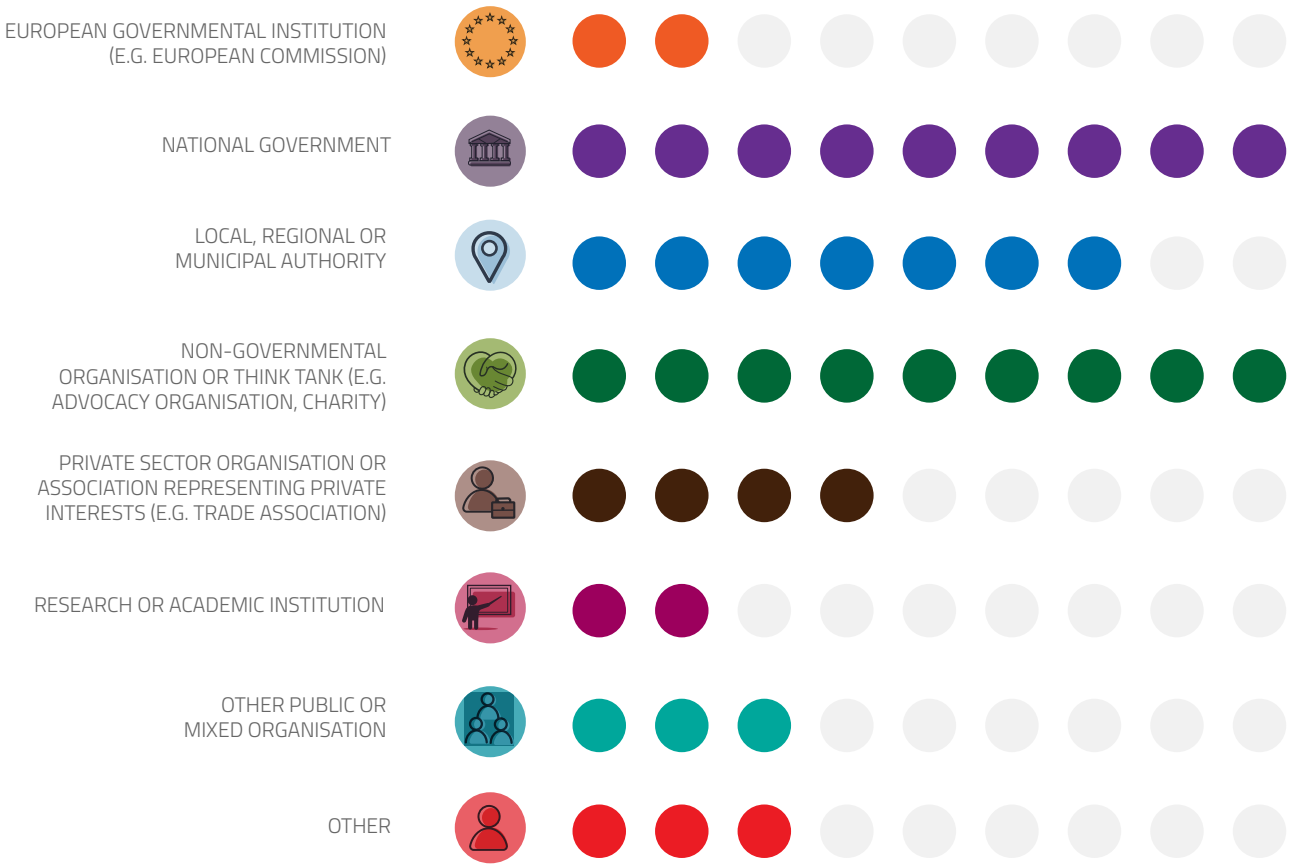


Fig 5. Applicants' organisation types.

Fig 6. Locations where applicants are based.

In terms of geography, eligible applications came from 12 different countries and included twenty-five Western European entries, seven Eastern European entries, five Southern European entries (counting Turkey and Israel), and two Northern European entries - see Figure 6. This demonstrates a strong bias towards Western European organisations, notably Belgium (eleven applications) and The Netherlands (nine applications). This is likely to stem in large part from the Work Package lead being based in the Netherlands, as well as the aim of involving participants working on energy at the European level, making Brussels a key location. Acknowledging the wide variety of nationalities represented, it must also be taken into account that language barriers might play a role in filling out and interpreting the inputs in the application form, and indeed being open to a programme which is based on English-language meetings.

In the application form, applicants were asked to identify their primary and (optional) secondary priorities for their energy policy work, choosing from overarching Energy Union priorities. Results were as follows:

- **Renewables** (excluding transport fuels) - e.g. solar, wind, geothermal, ocean, biomass, bioenergy. Primary priority: 19 applicants. Secondary priority: 14 applicants;
- **Smart consumption:** Primary priority: 3 applicants. Secondary priority: 9 applicants;
- **Energy efficiency:** Primary priority: 15 applicants. Secondary priority: 8 applicants;
- **Transport:** Primary priority: 0 applicants. Secondary priority: 2 applicants;
- **Nuclear:** Primary priority: 2 applicants. Secondary priority: 0 applicants;
- **Carbon capture and storage:** Primary priority: 0 applicants. Secondary priority: 1 applicant.

4. Analysis of policy questions by thematic category

In this Section, we unpack the policy questions using the thematic categories introduced in Section 3. In order to do this, we discuss each of the five thematic categories in turn. We first discuss how questions were framed by the applicants whom we allocated to that thematic category, then provide commentary on these framings, and draw on both the policyworkers' questions and our interpretation to develop key discussion points. Finally, we highlight other questions that emerged within the applications that were categorised within the respective thematic category, but which relate to issues outside that category. Highlighting these questions is important because any categorisation based solely on dominant themes risks neglecting or subsuming alternative or innovative perspectives. For the same reason, this Section also ends with an overview of three additional policy issues raised in applications that did not fall within any of the five thematic categories, and thus were not allocated to them.

4.1. Opening up the thematic category: 'Citizen Engagement'

Citizen engagement concerns the issue of facilitating active citizen participation and citizen dialogue at different governmental and governance levels. We firstly note that in the application form, one of the examples of a possible response to Q3 was given as: "*How can local authorities promote citizen engagement in energy?*", and two applicants used this phrase verbatim. Nevertheless, the 36 separate times the applicants used the terms 'engage/engagement' across the full applications (including the Keywords) demonstrates this is an area whose language is commonly being used in energy policy conversations, although as we shall see, it can be invoked in a variety of ways. In Figure 7, direct quotes from these application forms are featured, as taken from the full answers to Q3 regarding "*Key policy 'problem' for discussion*".

Fig 7. ***Framing of key policy questions in applications allocated to 'citizen engagement' (bold added), in applicants' own words*.*** *These 14 applications were from: European governmental institution (1), national government (3), local, regional or municipal authority (3), NGO (1), private sector organisation or association representing private interests (e.g. trade association) (2), research institution (1), other public or mixed organisation (1), and other (2).*

*We have corrected spelling or grammar in places, or added clarifications in square brackets [], to make the meaning clear or assist with anonymisation.

** These questions also include input from Q4 for clarification.

"First, the [National] Climate Agreement concluded in 2019 is to be implemented. Using the traditional [stakeholder approach], a wide array of actors agreed upon measures to reduce GHG-emissions. This agreement, however, affects society as a whole. Accordingly, it is important to attain a higher and broader degree of public support. A first challenge, therefore, is: How do we move from a stakeholder approach to **one that includes and connects with citizens**?

A second, and related challenge concerns the monitoring and evaluation of effects of the Climate Agreement's policy instruments. Although a wide range of these policy instruments can be monitored and evaluated, it is unclear whether the package as a whole will bring about (or contribute to) a transition towards a carbon free economy. If this can be assessed, the next challenge is to identify the phase of transition we are both in and moving towards, and adjust our actions accordingly.

Thirdly, the Climate Agreement contains a '**citizen dialogue**' aimed at gathering insights and increasing understanding of citizens' views and experiences of the energy transition. The question is how to design such an ongoing citizen dialogue for the period of a decade. What are effective methods for gauging citizens' perspectives and interests? And how do we differentiate between general attitudes versus specific needs and perspectives regarding their own living environment and daily lives?"

"I will mention two here:
1. How can we **engage the public trust**? How can we convey information where there is a lot of disinformation around? In particular there are many complex issues in the energy markets that policymakers need to explain to the public in order to justify their policy.
2. Achieving energy efficiency improvements is dependent on the **engagement of the consumers** in steps to reduce energy consumption. This often proves very difficult (for many reasons - depending on the situation)."

"What are the barriers to **citizens' involvement** in transformative policies at EU level?"

"How can we [national organisation supporting local initiatives] make MOU's [Memoranda of Understanding] or covenants with government to acknowledge our position as the new commons?
How can we organize ourselves as layered commons (working together local, regional and national)?
How can we find and show our impact, beyond classical money driven impact?
How can we validate our work (in a practical manner)?
What guidelines could local government help to change their **way of organizing participation**?"

"How can municipalities **engage citizens** in the energy policy making and secure their acknowledgment and appreciation for the energy related political decisions?"

"How can municipalities **engage citizens** in the energy policy making and secure their acknowledgment and appreciation for the energy related political decisions?"

"How can local authorities promote **citizen engagement** in energy?"

"How [do] our values and beliefs [about the] environment and climate change affect decisions of energy policymakers?[9]"

9 This application was placed in the Citizen Engagement category as it concerns the effect of interactions between policymakers and public opinion.

"Demand response: how can the **active consumer participate** actively as part of the energy transition?"

"How can we get **everyone on board** with the energy transition? How will the lives of consumers in the EU change as we move closer to a fully renewable energy system?"

"As an example, consider "How can local authorities promote **citizen engagement** in energy?" I believe that in [my country] there is an acute problem with the rational use of electric energy, at the same time most of the country is in agricultural areas, therefore, the quality of electricity consumed does not always meet the stated standards. It should be noted that as an example of resolving the issue at a strategic level, [what is needed] is an **information policy aimed at explaining to the population** regarding the efficient use of energy, the introduction of multi-tariff meters, the installation of metering systems with quality control of the consumed electricity. Indeed, it is not a secret for professionals that in order to [provide for the] hours of maximum load of the energy system, it requires the consumption of a large amount of resources, while at night there is an excess of generation, but the population does not know. Adjustment of consumption schedules will make it possible to stably load the energy system, and generation [facilities] to use resources efficiently, while in [this country] 50% of the generation of electric energy falls on the share of nuclear power plants that operate continuously with a nominal load."

"With regard to my main area of interest, I would like to understand better and more deeply how to **interact with the general public and citizens** in order to increase the social acceptance of specific energy technology, their implementation and the present and future energy transition. How to influence the policy decision process [..] How to better interact with citizens. **"

"How can we measure the benefits of community energy? How to **engage citizens** to become active in community initiatives, particularly those that are vulnerable or experience energy poverty? How can regulators balance **citizen empowerment** with other regulatory priorities such as consumer protection, cost-efficiency, competition, and non-discrimination? How can social innovation be better prioritised in energy research and innovation? How to promote **citizen and community participation** in energy research and innovation projects?"

"The key questions to be addressed will be those ones mentioned in [a specific funding call]. For the time being, I am focusing on the following questions: a) Is **energy citizenship** more likely to emerge locally, or at regional, national or supranational levels? For what reasons? b) What impact does the digitalization of the energy system and the proliferation of social media have on the emergence and consolidation of **energy citizenship**?"

"I will mention two here:
1. How can we **engage the public trust**? How can we convey information where there is a lot of disinformation around? In particular there are many complex issues in the energy markets that policymakers need to explain to the public in order to justify their policy.
2. Achieving energy efficiency improvements is dependent on the **engagement of the consumers** in steps to reduce energy consumption. This often proves very difficult (for many reasons - depending on the situation)"

"How can the municipality support and **collaborate with** local sustainable initiatives?"

4.1.1. Empirical areas related to 'Citizen Engagement'

Across this set of applications, citizen engagement was discussed from a number of perspectives, including:

- The role of **local authorities / municipalities** in engaging with citizens;
- Developing **clearer roles** between policymakers and citizens;
- Incorporating **citizen dialogue** and empowerment into the implementation of regulatory frameworks;
- Engaging with consumers to **affect their behaviour**.

The role of local authorities, or municipalities, is of key interest to many applicants, even though the majority quoted above were not working within such organisations themselves. Two applicants asked how local municipalities can engage citizens in energy policy and promote citizen engagement in energy. A policy adviser at a municipality started from the point of view of citizens who are already active, and wondered how "*the municipality can support and collaborate with local sustainable initiatives*".

A second perspective from which citizen engagement was discussed relates to clarity of roles between policymakers and citizens. An applicant from an NGO argued "*there is a lack of consensus on exactly who should have decision making power for a truly successful transition*". In this context, someone from an energy cooperative asked how it might be possible to collaborate with local, regional and national entities as what they interestingly termed a 'layered commons', and how they might create MOUs or covenants with the government for this.

A third perspective concerned the successful implementation of regulatory frameworks aimed at e.g. achieving climate targets. In this regard, policyworkers may be looking for ways to create public support for high-level climate agreements, for which they need to connect with – and potentially take on board the views of – a very broad base of citizens. One applicant was specifically interested in designing a 'citizen dialogue' mechanism as part of the rollout of a national climate agreement. Meanwhile, another applicant working for an NGO asked how regulators can balance citizen empowerment mechanisms with other regulatory priorities, including "*consumer protection, cost efficiency, competition and non-discrimination*".

Another perspective found among applicants analysed under this challenge regards affecting the behaviour of consumers through engagement. It is notable that the terms consumer and citizen were used in a variety of ways by applicants (we discuss this issue further in Subsection 4.4). A researcher at a ministry argued that "*Achieving energy efficiency improvements is dependent on the engagement of consumers in steps to reduce energy consumption*". The researcher discussed two main obstacles encountered in their daily work: motivating consumers to save energy when the energy price is low, and how to help consumers to purchase energy efficient products. The issue of understanding consumer behaviour in order to engage with them was echoed by a research project manager from a public organisation. They discussed the question of how consumers can actively participate in the energy transition, claiming that up to now "*the consumer is still too often reduced to an actor acting in a purely rational way*". In this regard, there seems to be overlap with the Social Acceptance and Behaviours thematic categories (below). Similarly, someone at an NGO wanted to know more about 'community energy' and "*how to engage citizens to become active in community initiatives*"; in other words, using the language of 'engaging citizens' to refer to promoting people's involvement in generation schemes - again, linking with the Behaviours thematic category.

4.1.2. Commentary on framings of 'Citizen Engagement'

Reflecting on how the issue of citizen engagement is discussed in the applications, a few considerations emerge. Applicants who invoked this theme seemed to recognise the importance of truly *engaging* citizens. In other words, the objective is not manipulating or trying to convince citizens but rather having a debate in which citizens are invited to participate. Hence, citizen engagement is (mostly) not seen as a means to an end but rather as a main component of a successful energy shift. These applications also show the blurred lines between the concepts of citizen, consumer and even producer of energy.

Based on reviewing the applications which invoked citizen engagement, as well as our own commentary, we have distilled four policy questions, where policyworkers may particularly welcome insights from Social Science and Humanities research:

1. What is the role of local municipalities/ authorities in engaging with citizens?
2. What are the different possible configurations of decision-making structures between policymakers and citizens?

3. How can policyworkers incorporate participatory dialogue processes in existing climate/energy policy frameworks?
4. What are the different ways in which people can be engaged in energy transitions, as consumers, as citizens, and as producers?

Further discussion of citizen engagement, and ensuring inclusivity in energy policy and research, can be found in a Scoping Workshop Report on this topic, produced by Energy-SHIFTS[10].

4.1.3. Beyond 'Citizen Engagement'

Beyond issues relating very directly to citizen engagement, were found wider issues of energy citizenship. As one example, someone from the private sector asked how digitalisation of the energy system and social media affect the emergence of energy citizenship.

Gaining public trust and countering disinformation, for instance with regards to the workings of energy markets, were also mentioned by an applicant working at a ministry – bringing up questions related to communication and information deficits, and linking with the 'Social Acceptance' thematic category (Subsection 4.2). Another applicant focused on the need to use information to encourage people to shift the timing of their consumption, linking to the 'Behaviours' thematic category (Subsection 4.4), while another wondered more broadly, "*How will the lives of consumers in the EU change as we move closer to a fully renewable energy system*?"

Another set of questions, and a new area of interest, concerned the issue of monitoring and evaluation of policy processes and outcomes. An applicant from a ministry wondered how policy instruments might be better monitored and evaluated, bringing in SSH insights. In this vein, another applicant from an NGO asked how the benefits of community energy might be measured, and someone from an energy cooperative also wanted to know how they might find and demonstrate the (social) impact they have by moving beyond conventional financial revenues.

Finally, another issue raised was "*How can social innovation be better prioritised in energy research and innovation*?" alongside an engagement-related question of particular relevance to SSH researchers: "*How to promote citizen and community participation in energy research and innovation projects*?" As can be derived from the word cloud in Fig. 3, social innovation was mentioned numerous times by applicants as a 'Keyword'. This corresponds with how the term was selected as a cutting-edge SSH topic for one of the scoping workshops of Energy-SHIFTS[11].

4.2. Opening up the thematic category: 'Social Acceptance'

We firstly note that there are 20 occurrences of the terms 'accept/acceptance' across all full applications, highlighting its prevalence in the current energy policy conversation. Many applicants described social acceptance as a challenge of having others accept a fact concerning climate neutrality and the energy transition, or an energy-related change in policy or technology. In total, eight applications were allocated to this thematic category. In Figure 8, direct quotes from these application forms are featured, as taken from the full answers to Q3 regarding "*Key policy 'problem' for discussion*".

10 Suboticki, I., Świątkiewicz-Mośny, M., Ryghaug, M. and Skjølsvold, T.M., 2019. *Inclusive Engagement in Energy with special focus on low carbon transport solutions. Scoping workshop report.* Cambridge: Energy-SHIFTS.

11 de Geus, T. and Wittmayer, J., 2019. *Social Innovation in the Energy Transition. Examining diversity, contributions and challenges. Scoping workshop report.* Cambridge: Energy-SHIFTS.

Fig 8. ***Framing of key policy questions in applications allocated to 'social acceptance' (bold added), in applicants' own words*.***
These 8 applications were from: national government (3), local, regional or municipal authority (1), NGO (3), and research institution (1).

"How to ensure that the energy transition is generally **accepted** by EU citizens ([especially] the social impacts of the transition)? How to ensure that the transition is also generally accepted by EU businesses ([especially] the impact of the transition on the competitiveness of businesses)?
More broadly, how to ensure that policy-makers do not perceive citizens/businesses as being more conservative than they actually are?"

"How to communicate change to citizens (new regulations regarding heating appliances, fight against air pollution etc). How to **convince** SMEs to participate in low-emission transformation (changing business models etc). How to fight energy poverty."

"Social barriers for the energy transition, beyond NIMBY-issues. **Social acceptance** and citizen engagement for the energy transition, particularly themes relevant for smart cities and communities."

"How to communicate change to citizens (new regulations regarding heating appliances, fight against air pollution etc). How to **convince** SMEs to participate in low-emission transformation (changing business models etc). How to fight energy poverty."

"Local **acceptance** of renewables; **local acceptance** of CCS [Carbon Capture and Storage] transport and storage [of CO2]; politics in the age of net zero."

"**Social acceptance** of a massive renewables implementation (also considering that there may be no option for decarbonisation)."

"1. The social dimensions of creating a large offshore wind sector, occupying a large part of the sea. 2. The **social acceptance** of onshore wind. 3. How do we shape our energy system to maintain positive business cases for renewable power plants in a system that is dominated by renewables."

"How can we ensure a well understood fully renewable energy system becomes **popular**."

"My key question is how we get **public acceptance of differences** when we say goodbye to heating with natural gas. At the moment we have a centralised energy system in [this country]. Almost everyone uses gas to heat their house and to cook, this gas is distributed by a central system. The alternatives for gas will not be the same for every neighbourhood in the council. This means there will be differences in costs and comfort."

4.2.4. Empirical areas related to 'Social Acceptance'

Issues discussed in relation to 'Social Acceptance' included:

- Acceptance of energy policy (either the need for greater action, or specific pieces of regulation/ implementation) by **citizens**;
- Acceptance of energy policy (especially its impact on the private sector) by **businesses**, but also encouraging responsive action by such businesses.

The most cited policy dilemma with regards to social acceptance concerned (or implied) having citizens accept energy policies. A civil servant who works on research policy at a national ministry referred to moving beyond "*NIMBY-issues*" and under Q4 mentions creating "*understanding and engagement for the need to transform our urban communities*". This quote suggests going beyond basic social acceptance. In particular, they referred to the example of wind power development in Norway. They wondered why public support remains low, and mentioned the question of what social barriers might exist for people to take part in the energy transition.

The specific issue of communities' acceptance of wind farms was mentioned by several applicants. A civil servant working on long term energy strategy contributed a policy dilemma: "*How to generate social acceptance of renewable energy on a large-scale level?*" They then related this to the local rejection of projects, and challenges in engaging with the local populations on issues such as energy poverty and decision-making. This issue was also echoed by a project manager at an EU-focussed NGO, who mentioned the difficulty of local acceptance of renewables, as well as struggling with local acceptance of carbon capture and transport and storage, which they see as highly relevant issues for the success of energy policy, but simultaneously "*politically sensitive*" and "*somewhat underrepresented*" in their work.

Another applicant working at an EU-focussed NGO wondered how to popularise a fully renewable energy system. They argued that while the technology is already available to realise this, this information is not yet mainstream. Another perspective linked to acceptance came from a policyworker from a municipality, who questioned how citizens will accept new inequalities that might arise from differentiating energy prices, due to the opening up of a variety of heating sources.

The second main empirical area in which social acceptance was discussed, was with regards to interaction with the private sector and businesses. The issue of convincing small and medium enterprises to participate in the low-carbon transition, for instance by supporting innovation in business models, was addressed by a civil servant. A director from an NGO raised the issue of "*How to ensure that the transition is also generally accepted by EU businesses (especially the impact of the transition on the competitiveness of businesses)?*", and accordingly, "*Which policies would more effectively strengthen the competitiveness of EU businesses in the energy transition?*".

4.2.5. Commentary on framings of 'Social Acceptance'

There are several observations that SSH researchers have made with regards to the framing of 'Social Acceptance'. First, when framing barriers for accelerating the energy transition as an issue of 'acceptance', it might be interpreted that this implies a unidirectional relationship. That means an understanding of acceptance in which party A wants party B (e.g. citizens or businesses) to accept a particular policy or set of actions. The widespread discourse of 'acceptance' arguably frames interactions with citizens and businesses primarily as communications exercises, which have the objective of promoting compliance, rather than engaging in a conversation. Opportunities to co-create and shape approaches together with citizens, users or consumers may be given less attention if the aim is framed primarily in terms of social acceptance.

Second, as one of the applicants implied, in many contexts cognitive resistance (arguably the opposite of 'acceptance') against energy policy may not be the primary problem at hand. Some businesses or citizens may be inclined to take increased action towards a lower carbon future, but might experience social, cultural or economic pressures that do not allow them to act in line with high level energy policy targets. Increased sensitivity and understanding towards these issues might help policies to be more effectively developed.

A third observation that can be raised here from a critical perspective, concerns the ethical dimensions surrounding issues of 'acceptance'. What dilemmas of legitimacy arise when policymakers attempt to change the attitudes and beliefs of other social actors? What other actors are attempting to shape those attitudes and beliefs, with what agendas, and through what means? While these questions were not addressed by the applicants themselves, they provide ample opportunity for further ethical debate, including contributions

from researchers, which can support policymakers in taking decisions.

Based on reviewing the applications which mentioned issues of social acceptance, as well as our own commentary here, we have thus distilled five policy questions, where policyworkers may particularly welcome insights from Social Science and Humanities research:

1. What social, economic or cultural factors influence perceptions of renewable energy implementation among citizens?
2. How can businesses be encouraged to take a proactive role in responding to energy policy?
3. How can high-level policy incorporate sensitivity to the implementation of energy policy in local communities?
4. What constitutes the difference between a strategy of creating 'acceptance' versus 'citizen engagement'? (See also Subsection 4.1, above).
5. How might parties critically evaluate ethical behaviour in seeking to influence public opinion?

4.2.6. Beyond 'Social Acceptance'

A diversity of other areas were mentioned within the applications which were categorised under the heading of 'Social Acceptance', which in many cases relate to completely new areas for discussion. It is important to recognise that these may be equally, or indeed more, important to the policyworkers in question.

One applicant questioned how to prevent policymakers from perceiving citizens as well as businesses from "*being more conservative than they actually are*?", which seems to suggest that rather than having to accept policy 'top down', there may be an unrecognised appetite for action among these actors. Another issue mentioned was "*Politics in the age of net zero*", which might suggest that the applicant would like to explore how climate neutrality affects the political landscape.

The two applicants who described issues of: "*social barriers for the energy transition, beyond* NIMBY*-issues*" and "*The social dimensions of creating a large offshore wind sector*", are providing an opportunity for SSH researchers to help identify what these social barriers, or social dimensions might be. The first applicant is in particular highlighting a recognition that these go *beyond* social acceptance issues, and would like support in understanding this further.

Applicants who mentioned "*citizen engagement for the energy transition, particularly themes relevant for smart cities and communities*" and "*How to communicate change to citizens*" demonstrate the overlap with the Citizen Engagement category (see Subsection 4.1). A reference to "*How to fight energy poverty*" points towards an overlap with Just Transitions (Subsection 4.3).

Two applicants referred to how renewable energy will affect competitiveness and business cases. Whereas one applicant then continued to link this to the issue of businesses accepting this impact, the other applicant asked: "*How do we shape our energy system to maintain positive business cases for renewable power plants in a system that is dominated by renewables*?"

Thus, even in this small sample, applicants who mentioned 'acceptance' also raised a wide range of other issues: some complementary and some divergent. This suggests that there are many 'routes in' for SSH researchers to begin conversations with policyworkers who are interested in acceptance, and also that acceptance is rarely seen as a stand-alone policy challenge, but rather as one part of a complex social, political and technical landscape. This is why, as noted above, each Fellow is being matched to around five SSH researchers who can bring a range of expertise.

4.3. Opening up the thematic category: 'Just Transitions'

We understand 'Just Transitions' to relate to how energy transitions might exacerbate or reproduce existing inequalities. It therefore includes mostly policy questions addressing the accessibility of energy, as well as vulnerable populations and energy poverty. Direct quotes from the eight applications allocated to this thematic category can be viewed in Figure 9.

Fig 9. ***Framing of key policy questions in applications allocated to 'just transitions' (bold added), in applicants' own words*.*** *These 8 applications were from: European governmental institution (1), national government (1), local, regional or municipal authority (2), NGO (1), private sector organisation or association representing private interests (e.g. trade association) (1), other public or mixed organisation (1) and other (1).*

"1- Implementation of the Electricity Market Directive provisions on **vulnerable customers** – Member States shall be free to implement exceptions to phasing-out of regulated prices when for the purpose of protecting specific categories of consumers. The definition of these categories should be consistent among Member States, fair, and effectively and broadly **prevent energy poverty**, while the public intervention into energy supply prices should be proportionate.

2- Prevention of negative shortcomings of digitalisation of the energy system – How to take into account consumers who are not able to automatically adjust their consumption behaviour and cannot profit from the benefits provided by digitalisation such as dynamic prices? How to encourage even **less digital-savvy consumers** to take up a more active role in the energy market through new energy services? How to prevent these categories of consumers being confronted with and getting locked into higher energy prices? How to ensure personal data are protected while data are shared and used to improve the services?

3- While shaping the energy transition, how can the EU keep citizens and local authorities on board and guarantee that the transition is **inclusive**? What additional incentives, including at local level, through sectoral integration and maximising the potential of local resources, close to citizens and customers, are needed to achieve the energy and climate goals for 2030 and to realise full decarbonisation by 2050?"

"Making solar energy **accessible** and affordable for many citizens."

"The key policy problem for discussion, based upon the [named project], is 'how can we make the energy transition attainable / **accessible for people** in poverty or with limited investment possibilities?"

"1. How can we make and roll out a transition plan for specific neighbourhoods on becoming fossil fuel free, involving citizens, taking into account existing thresholds, changing mentality, the specific architectural needs of the houses in the areas? How to convince people to do future-proof investments?
2. How can we tackle **energy poverty** better, specifically in a preventative way? How do we reach out to these target groups? What measures can be effective, from financial ones (subsidies, loans ....), to supportive ones? How to reach out to **tenants in a precarious situation**?"

"Policy instruments for alleviating **energy poverty** in different EU member states. Co-benefits of the energy transition. Distributional implications of R[enewable] E[nergy] expansion. Split-incentive dilemma for energy-efficient building renovation[11]."

12 A split-incentive problem occurs when the costs and benefits of efficiency investments accrue to different actors, e.g. landlord and tenant.

> *Climate-neutrality without change in behaviour, attitudes and values; what is easier to deal with? How do we appropriate the* ***costs of the transition*** *to society? Is technological innovation challenging our democratic values; what does it really mean,* ***'empowering the citizen'****?*

> *What are the health benefits of refurbishing houses to be able to shift from natural gas to a different way of heating? How can neighbourhoods* ***benefit as a whole socially, economically and climate wise*** *from the energy shift?*

> *What is the role of different actors in a successful,* ***just transition*** *and how can this be facilitated? I would aim to integrate this into my existing work, to enhance it and provide added value. I would like to explore what role different actors play in successful transitions and how these roles can be replicated in different spaces. It would include explorations of which actors can delay the transition and what frameworks are needed to ensure actors fulfil helpful roles. I'd hope to ultimately produce some kind of position paper (by June 2020) evaluating existing frameworks (notably the coal platform, but perhaps others too) on how well they support actors to play their ideal roles in the successful* ***just energy transition****.*

4.3.1. Empirical areas related to 'Just Transitions'

There are at least three key issue-areas which can be derived from the applications:

- **Inclusive** decision-making and democracy;
- Energy **poverty**;
- **Access** to low carbon technologies.

The first main challenge concerns inclusive decision-making. Some applicants working in the public sector expressed their experience of challenges to setting up effective participation programmes. They suggested they would like to develop knowledge on how to effectively include low-income people and to reach out to tenants in precarious situations. An applicant representing local and regional energy companies emphasised the need for an inclusive and fair energy system. They stated that this is crucial to "*address climate change, make climate change mitigation and adaptation policies acceptable, ensure the largest number of citizens possible contributes, and therefore make [policy] more effective*". Another asked, more fundamentally, "*What does it really mean, 'empowering the citizen'?*", while an applicant who works on the social dimensions of the Energy Union asked whether technological innovation is challenging our democratic values.

The second theme relates to the position of vulnerable groups, such as low-income households, in the energy transition. Applicants raised a range of issues around energy poverty, and around energy justice more widely, for example, how consumers that are not as digitally-savvy can keep up with digitalisation developments in energy markets. One particularly highlighted challenges of prevention of energy poverty, and the efficacy of different measures to address it.

Thirdly, some applicants touched on a wider issue of equitable access to the benefits of low carbon technologies, notably renewable generation. For example, one applicant mentioned how they aim to make solar energy accessible for all citizens. Another specifically mentioned the distributional implications of renewable expansion, as well as the split-incentive dilemma[12] that can limit people's access to energy-efficient building renovation. Looking at equity from another angle, one applicant asked: "*How do we appropriate the costs of the transition to society?*"

4.3.2. Commentary on framings of 'Just Transitions'

Reflecting on the applications under the 'Just Transitions' thematic category shows the complexity of the challenges policyworkers face in building equitable and inclusive energy systems.

Applicants highlighted the responsibility of high-level institutions to protect vulnerable consumers (for example EU Member States, through a Directive) with an emphasis on top-down leadership and governance. At the same time, some applicants stressed the importance of change at the neighbourhood and community scale, and the need for policy to be sensitive to local needs.

For SSH researchers that want to support the work of policyworkers around just transitions, the following three questions warrant further exploration:

1. What methods are effective to facilitate 'inclusive' participation of diverse citizens? (See also Subsection 4.1 on Citizen Engagement).
2. How can policy effectively prevent and relieve energy poverty?
3. How to promote social justice in a changing landscape of new technologies and digital infrastructures?

Further discussion of the complex challenges around just transitions, and the potential role of SSH in addressing these, can be found in a Scoping Workshop Report produced by Energy-SHIFTS on this topic[13].

4.3.3. Beyond 'Just Transitions'

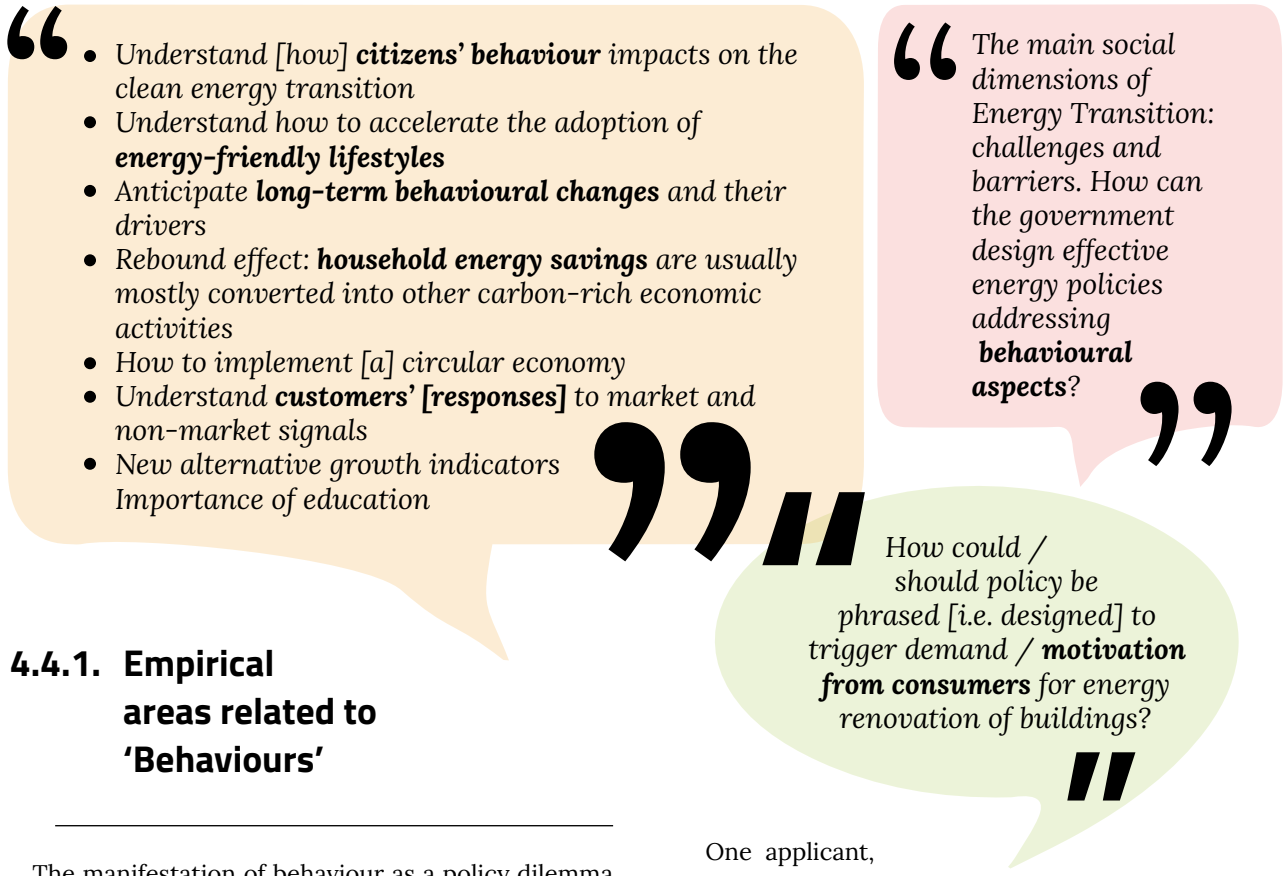
Many of the eight applicants grouped under this thematic category also mentioned issues that extend beyond the core topic of Just Transitions, to a greater or lesser extent. For example, some applicants mentioned issues around the co-benefits of energy policies, including health benefits - a topic that arguably connects to Just Transitions, in that these co-benefits may be distributed in a progressive and equitable way, or in a regressive way. Another issue raised related to ensuring data protection within digital energy systems. Some applicants mentioned issues around convincing people to make investments, the idea of climate neutrality without behaviour change, and citizen involvement, all of which relate to other thematic categories (Social Acceptance; Behaviours; and Citizen Engagement). A point raised regarding the roles of different actors within a just transition also connects with the Human Capital thematic category (see Subsection 4.5, below). This entanglement suggests that policyworkers see justice as a theme that is pervasive within a wide range of energy policy issues.

4.4. Opening up the thematic category: 'Behaviours'

Three policyworkers explicitly addressed issues around behaviours and motivations for action in their applications, and were allocated to this thematic category, as can be seen in Figure 10. This is perhaps lower than might have been expected, given the prevalence of 'behaviour change' discourses as a route to reducing carbon emissions.

13 Amon, A. and Wagner, A., 2019. *Carbon Intensive EU regions. How can Social Sciences and Humanities (SSH) contribute to the acceleration of a truly just transition? Scoping workshop report*. Cambridge: Energy-SHIFTS.

Fig 10. ***Framing of key policy questions in applications allocated to 'behaviours' (bold added), in applicants' own words****. These 3 applications were from: national government (1), NGO (1), and private sector or association representing private interests (e.g. trade association) (1).*



4.4.1. Empirical areas related to 'Behaviours'

The manifestation of behaviour as a policy dilemma in the applications can be observed to cover at least two related angles:

- **Understanding** individuals' motivations and behaviour;
- **Influencing** behavioural change through policy.

Someone at an EU-centered NGO expressed the desire to better "*understand [how] citizens' behaviour impacts on the clean energy transition*" (this use of the term 'citizen' is discussed below). Throughout their application, they explained how the dominant approach to policy for the energy transition is preoccupied with focusing on adapting market signals. In the application, they mentioned that this focus assumes people to act as perfect 'dynamic market agents'. According to the applicant, this image of a model *homo economicus* fails to recognise how factors such as "*interest, awareness, or understanding of these market signals*" actually affect behaviour, particularly since behaviour cannot be solely explained in terms of rational decision-making. Their policy dilemma therefore concerns how to include alternative understandings of human behaviour in decision-making.

One applicant, from an association working on renovations of existing buildings, stressed the need to address disconnects between policy and behaviour 'on the ground', which according to them, are rooted in a lack of understanding. They stated, "*I strongly feel that if we as policy people want to improve upcoming policy proposals we have to better understand how people decide (or not).*" They then continued to ask a multitude of related questions, relating to what motivates people's decision to renovate their own house, and how policy might trigger demand.

Other applicants focussed on the issue of how to include behavioural change in policymaking. An applicant from an EU-focussed NGO stated the ambition to "*understand how to accelerate the adoption of energy-friendly lifestyles*", as well as to "*anticipate long-term behavioural changes and their drivers*" and the rebound effect, preventing household energy savings from 'rebounding' to other CO2 intensive expenditures. Overall, this applicant aims to design policies for climate-neutrality that build on behavioural sciences, in order to foster behavioural changes. An applicant working on a National Energy and Climate Plan linked this issue to their work in modelling technology

pathways as well as behavioural scenarios. They asked the policy question "*How can the government design effective energy policies addressing behavioural aspects?*"

4.4.2. Commentary on framings of 'Behaviours'

Reflecting on how the issue of behaviours is discussed in the applications, a few considerations emerge. First, it is notable that both 'citizen' and 'consumer' behaviours are referred to, but the implication is that the behaviours in question are actually related to consumption and market activity; not to activities in the sphere of politics and civil society. The term 'citizen' has recently gained prominence in EU policy spheres, and it appears that it is sometimes used interchangeably with 'consumer', despite the different connotations of the two terms. It is also notable that 'behaviour' is framed as something done by individuals and households, rather than an enactment of the practices of communities and societies (while the actions performed by corporations, NGOs or policymakers are not framed as 'behaviours' at all).

Second, the behaviour of individuals is generally considered as a rather homogenous phenomenon. Rather than specifying questions around particular groups of people, areas, or content-specific questions, most applicants approached the issue from a high-level and general perspective. Besides, the dilemmas were primarily framed towards people who appear not to be aligned with the objectives of energy policymakers, rather than considering how to further support people who are 'in line', or perhaps even are ahead of policy.

Third, the way behaviour was framed in the applications may at times imply that behaviour is additional to the energy transition. Rather than people being at the heart of the energy transition, they were framed as having to adapt their behaviour in line with expectations that are not explicitly defined. How exactly do behaviours need to change and in accordance with what 'ideal type? Why? These are questions that can be further explored by SSH.

The fourth and final consideration concerns how 'behaviours' are the result of complex societal histories and processes. People, rather than performing behaviours in isolation, are embedded in socio-technical systems, and their actions are fundamentally shaped by infrastructures and by shared norms and conventions. Such a systemic understanding of practices is relatively rare in policy discourses, and might be an important perspective for policyworkers to engage with in order to gain a better understanding of people's actions.

Based on the empirical findings as well as our own commentary, we can draw out two policy questions, which we argue require further consideration in the Social Sciences and Humanities:

1. How can policyworkers be supported to better understand people's actions as consumers in the energy transition, and develop policies based on this understanding?
2. How can policy discourses on behavioural change be reimagined to include systemic and social understandings of practices?

4.4.3. Beyond 'Behaviours'

Only three applications were placed within this thematic category, and two of these focussed almost exclusively on behavioural issues (albeit with one applicant referring in a more general way to "*social dimensions of Energy Transition*"). Therefore, there were relatively few non-behavioural issues raised by applications in this category. These were, namely: the question of "*How to implement [a] circular economy*", the issue of "*New alternative growth indicators*" and the "*Importance of education*". Arguably, the importance of education might also be interpreted as a way to affect behaviour in this context. However, it is notable that the two points raised regarding new economic models do represent a more systemic level of focus, and an interest in scales beyond that of the individual or household.

4.5. Opening up the thematic category: 'Human Capital'

The thematic category 'Human Capital' includes questions that refer to the change in skills, capacities and organisational processes that are associated with energy transitions. This includes the implications for professionals in the energy sector, how collaboration between people is organised, and readiness of consumers for changes in the energy market. In total, three applicants were grouped into this thematic category – see Figure 11.

Fig 11. ***Framing of key policy questions in applications allocated to 'human capital' (bold added), in applicants' own words*.*** *These 3 applications were from: national government (1), local, regional or municipal government (1), and NGO (1).*

> *How to strengthen the sense of security for local communities in the transition process? How to use the* ***cultural heritage of coal mining*** *to shape the* ***new socio-economic future*** *of the region?*
> *The sense of danger and uncertainty, especially* **among mines and power plants employees** *is high when we tell [people] about transition. We want to calm the social moods and work towards a social consensus for changes.*

> *1. How can we ensure a just transition for* ***installers and service persons*** *working in [my country's] heating industry as new technologies and new skills come to the fore?*
> *2. How are consumers engaging with new business models for heat, and how can we ensure they are* ***prepared*** *for possible changes to [my country's] energy market?*
> *3. How can we foster positive relationships between different actors (whether Governmental, local, market, or citizens) under heating transition to ensure mutually beneficial outcomes?*

> *The municipal urban planning regime is under pressure from the energy transition. Among these pressures are rapidly shifting (inter)national ambitions and stricter regulations on environmental issues, energy initiatives by citizens and public resistance to proposed changes.* ***Organizational change is necessary*** *to better facilitate the energy transition. The overarching question I would like to explore is: 'Which changes have to be made* ***within the municipal organization*** *to accelerate the transition towards a zero-carbon energy system?'*

4.5.1. Empirical areas related to 'Human Capital'

Applicants considered that the energy transition might have implications both for people working in the energy sector and for the general public. The policy-workers were particularly concerned with the following issues:

- Labour and economic security for individuals and communities working in the traditional energy sectors (e.g. mining industry, heating industry) and the issue of **reskilling workers;**
- Need for different skills sets, **organisational structures** and relationships for managing energy transitions;
- **Consumer adaptation** to a restructured energy market.

First of all, applicants from Northern and Eastern Europe discussed their concerns with regard to the high levels of uncertainty and insecurity among coal mine workers, power plant employees, and installers and service persons working in the heating industry. Consequently, they asked questions about of how to support these energy workers to transition to a low-carbon energy sector. They realise that in order to obtain new employment opportunities, these workers will have to acquire new knowledge and skills. Therefore, they wish to identify skill gaps and determine what kind of training workers need to be able to move to new jobs. The policyworkers thus acknowledged that they need to take into account potential risks that workers might encounter, and respond to their needs in order to facilitate a just transition and build trust between the authorities and people working in the fossil-fuel energy sectors.

Second, one applicant addressed the fact that not only do workers require new knowledge and skills, but policyworkers themselves, and the organisations they work in, may also need to evolve. One of the applicants from a municipality argued that the energy transition requires an organisational change at the municipal level: there are too many technical workers involved in the energy transition, and too few professionals who understand and work with social aspects of the transition to low-carbon energy. They pointed out: "*Actions targeting culture, behaviour, principles and values within the municipality are almost not addressed*".

Thirdly, one of the applicants who works in a national government pointed out that the energy transition will transform the energy and heating market, which, in turn, will bring about the transformation of business models for district heating. Therefore, they raised the question of how citizens engage with such new business models. In addition, they asked how the authorities can ensure that consumers are prepared for the upcoming changes. They believe that it is the task of the government to make people feel secure and to take into account their needs and expectations. They argued it is paramount to give the consumers "*due confidence in the Government's ability to navigate complex trade-offs over the future of heat*".

4.5.2. Commentary on framings of 'Human Capital'

The applicants seem to realise that they need to facilitate a dialogue between various actors to accelerate the energy transition and ensure beneficial outcomes for all stakeholders, including energy workers. More insight on balancing environmental protection with social and labour security could support decisions and trade-offs with regard to this issue. For this reason, the applicants are eager to engage with SSH perspectives to help them identify and tackle social consequences of the energy transition. As one of the applicants pointed out: "*an SSH perspective can help illuminate public expectations around change and how we might navigate complex trade-offs that could lead to very different social outcomes*".

The review of the applications allows us to identify the following four policy questions related to the policy challenge on human capital for the energy transition:

1. How to support vulnerable energy workers in gaining new knowledge and skills needed to successfully transition into the renewable energy sector;
2. How to bring about organisational change in order to accelerate energy transition;
3. How to support citizens in anticipation of energy market changes;
4. How to balance environmental protection with social and labour security.

4.5.3. Beyond 'Human Capital'

There are only three applications in this thematic category, and each of them focuses on issues closely connected to the theme of human capital. The analysis of the applications shows that the question of human capital is strongly linked to policy challenges of stakeholder engagement and just transitions for all. Although the policy questions of the applicants were focussed on particular stakeholder groups (energy workers, consumers, urban planners, etc.), they also addressed the issue of a stakeholder dialogue. The applicants realise that the aforementioned problems cause social resistance and, thereby can potentially hamper energy transitions. Therefore, one of the applicants asked, "*How can we foster positive relationships between different actors under heating transition to ensure mutually beneficial outcomes to 2050?*"

Another related issue was discussed by the applicant from the municipality. They pointed out that the energy transition is not taken into consideration in the context of urban development. In order to overcome this obstacle, they suggested organising a course for urban planners on energy transitions, although they admitted that this measure is not sufficient and that there should also be structural changes. Therefore, the policy challenge they posed is, "*Which changes have to be made within the municipal organisation to accelerate the transition towards a zero-carbon energy system?*".

4.6. Additional themes: legal frameworks, the building sector and energy security

Three applications were not placed within any of the five thematic categories discussed thus far, and we briefly review them in this Subsection - see Figure 12.

Fig 12. ***Framing of key policy questions which were considered additional themes, in applicants' own words*.*** *These were from: Local, regional or municipal authority (1), NGO (1), other public or mixed organisation (1).*

** These questions also include input from Q4 for clarification.

A recurrent theme throughout the whole set of applications is understanding the effects of a changing energy economy. How businesses will be affected, as well as the impacts of new ownership models and digitisation on the energy landscape and consumer behaviours were highlighted in previous sections. How to design or adapt suitable modes of governance within this evolving economy was another question raised throughout the applications, and in one application here, legal frameworks were specifically highlighted. This applicant who works at an NGO argued that monopolisation and current laws (presumably related to business and innovation) are key barriers on the way to an energy transition.

A second additional theme concerns the building sector; a topic raised by an applicant from a ministry. They asked how potential CO2 savings in the building and construction sectors may be communicated effectively with actors, including businesses, so as to motivate them to become part of accelerating the energy transition. This echoes the themes of communication which occur across many applications, but with a particular sectorial emphasis (and relevance across both SSH and technological sciences).

Finally, one applicant gave a fairly broad response to Q3 around implementing effective energy conservation policy, but went on to explicitly mention the issue of energy security, which is not prominent within the wider set of applications, despite being a key driver of energy policy across the EU.

> *"The key problems are* ***monopoly and laws*** *that impede the development of innovative trends in energy."*

> *"Effective energy conservation policy. Energy management [..] How to achieve energy* ***independence and security****?"***

> *"The ... role of the* ***building sector*** *[is underestimated] within the climate crisis. (The buildings and construction sector accounts for nearly 40 percent of total energy-related CO2 emissions and 36 percent of final energy use worldwide.) How can the need for potential savings in the buildings and construction sector be put on the global agenda?"***

5. Conclusion

In this Section, we first summarise critical observations across each of the thematic categories. Secondly, we make some brief observations related to the policy-research interface, specifically how the framing of policy questions in this sample compares to dominant SSH research narratives and critiques, as well as the role SSH research is seen to be playing in informing the policy 'front line'. Finally, we include points to bear in mind for the implementation of the Policy Fellowship programme.

5.1. Summary across the thematic categories

First, to recapitulate, an overview of how the applications were categorised can be found below:

Thematic Category	Number of applications allocated
Citizen Engagement	*14 applications*
Social Acceptance	*8 applications*
Just Transitions	*8 applications*
Behaviours	*3 applications*
Human Capital	*3 applications*
Additional themes	*3 applications*
Total	***39 applications***

One of the most dominant issues concerned how applicants seem to be searching for effective ways to engage with citizens, in order to discuss issues related to energy transitions. The reasons for wanting to engage range from wanting to facilitate a robust democratic process to wanting to create public support for regulation or affect people's behaviour. Indeed, in the applications overall, 'citizen' seems to be used as a common buzzword – specifying who is meant by this term in particular situations may be an opportunity for fine-tuning policy questions in the future.

Another commonly used term was 'acceptance', and under the thematic category of Social Acceptance, we observed how policyworkers are looking for ways to convince citizens and businesses of accepting policy measures. Meanwhile, under Just Transitions, we discussed concerns about how to facilitate inclusive decision making, and provide affordable access to energy and low-carbon technologies.

Though less commonly discussed, there was also a cluster of questions relating to the theme of Behaviours, including questions on how to understand energy-related behaviour by consumers, and consequently, understand how this might be influenced. Another theme raised by a few applicants was that of Human Capital, which included issues of how to protect service persons whose profession is likely to drastically change, or even disappear, as well as organising the right capacities in institutions for facilitating energy transitions. Finally, individual applicants raised three additional themes: the changing of legal frameworks, addressing the impact of the building sector in the energy transition, and achieving energy security and independence.

5.2. Observations related to the policy-research interface

The first question we reflect on is how the framing of policy questions in this sample compares to dominant SSH research narratives (for example, areas which have received more attention in EU energy-related funding calls) and critiques (for example, observations SSH researchers have made about the roles they are asked often to play in interdisciplinary endeavours).

Given the common emphasis on individualistic solutions to climate challenges at the policy level[14], and which also have been found to feed into funding programmes[15], surprisingly few applicants made explicit an interest in individual behavioural change. This could be attributed in part to the way some issues were only implied in the policyworkers' discourses. Namely, where referring to citizen engagement or social acceptance,

14 Fox, E., Foulds, C. and Robison, R., 2017. *Energy & the active consumer - a social sciences and humanities cross-cutting theme report*. Cambridge: SHAPE ENERGY.

15 Foulds, C. and Christensen, T.H., 2016. Funding pathways to a low-carbon transition, *Nature Energy*, 1(16087) https://doi.org/10.1038/nenergy.2016.87

behavioural change was sometimes implied as the goal of the engagement/acceptance process. As one applicant stated: "*I would like to understand better [...] how to interact with the general public and citizens in order to increase the social acceptance of specific energy technologies [and] their implementation*".

Another well-known research issue concerns 'social acceptance', which has long been recognised as one of the 'default' areas which SSH is called upon to serve[16], particularly in technology-led research projects. Indeed, as noted, this area was explicitly mentioned by a large proportion of applicants. In the application form data, we observe that a need for social acceptance is often asked for in the context of, or as a response to, controversies or conflicts directly experienced by the applicants and which may have been fairly personally challenging. Consequently, social acceptance is considered as a way to help avoid these difficult situations in future instances. SSH researchers often have a direct interest in helping widen or reframe questions of social acceptance and it will be interesting to observe how this language changes or persists through the programme.

Arguably, in EU research funding programmes, the societal dimensions of energy transitions are often translated into a greater focus on citizen engagement and consumer/end-user behavioural change in comparison to other actors, including governance actors. Importantly however, applications clearly demonstrated an interest in learning more about the collaborations, values, behaviours and governance structures of a large range of actors, and certainly not just consumers or even citizens in a 'general public' sense. Thus we found specific reference to questions about: those working in municipalities, businesses and organisations, policymakers and policyworkers, community initiatives, populations vulnerable to energy poverty, and energy service persons. How to engage with businesses and citizen initiatives was discussed, as well as what capacities are needed in governing organisations in order to foster energy transitions. The issues of organising a multi-stakeholder dialogue, building trust and clarifying roles between various stakeholders were also mentioned by applicants.

A second relevant question for exploration is the role SSH research is seen to be playing, in these applications, in informing the policy 'front line'. Some applications give the impression that the applicants are indeed already drawing on academic literatures or have academic backgrounds themselves. Whilst this was not explicitly asked about in the application form, this topic is being further explored in subsequent conversations we are having with the Policy Fellows. However, it would be too simplistic to say new terms and issues are identified in research which then feed into policy. Instead, we argue it can be observed that the language of just transitions, energy poverty, inclusive engagement and energy citizenship are co-developing in both research and policy at the moment. An issue that was mentioned throughout many applications was how inclusiveness was considered instrumental not just for fostering *just* transitions, but for fostering *any* energy transitions in the first place. For further discussion of issues around just transitions and inclusive engagement, and the research-policy interface in these areas, please see two recent reports for the Energy-SHIFTS project[10,13].

While all the applicants were seeking input from researchers (this being the purpose of the Policy Fellowship programme), the nature of this desired input seemed to vary. In multiple cases, applicants sought scientific support and advice for dealing with the challenges and problems that they encounter in their daily practice (e.g. dealing with resistance to wind farms, addressing energy poverty, promoting energy-saving behaviours, or building capacity within their own organisations). Applicants involved in lobbying and advocating seemed to particularly request scientific insights to support their arguments for certain policy measures, while those involved in governance often mentioned a need for knowledge on overcoming barriers to policy implementation, and an interest in evaluation and monitoring techniques. Overall, the fact that the Policy Fellowship programme was oversubscribed, and that applicants submitted such a large quantity of questions suggests that there is considerable appetite among such policyworkers for greater interaction with the SSH research community and use of SSH evidence.

16 See, for example, Principle 5 of the SHAPE ENERGY Research & Innovation Agenda 2020-2030: https://shapeenergy.eu/index.php/agenda-2020-2030/

5.3. Insights for the implementation of the Fellowship Programme

Although some of the applicants had already developed nuanced and specific SSH-related questions that they wanted to explore answers to, other applicants seemed to be seeking support in identifying the most important questions of relevance to their programmes of work. As the Policy Fellowship programme progresses, the evolution of these policy questions will therefore be an important element for the Energy-SHIFTS consortium, and in particular the leads of the five thematic categories, to observe.

Furthermore, the fact that many applicants submitted complex and multi-faceted questions, often spanning multiple thematic categories, indicates the number and complexity of issues that energy policy-workers are confronted with. A key conclusion is therefore that selected Policy Fellows ought not to be 'pigeon-holed' based on the thematic category their application was placed in; rather, the full range and diversity of their interests should be explored throughout the Fellowship process. An opportunity that may help disentangle their policy questions, is to facilitate peer to peer contact between the Policy Fellows, as well as to foster interdisciplinary discussion among the Policy Fellows' group of Associates. We also note here that a key role of the facilitating team at Energy-SHIFTS is to help widen debates and ensure a breadth of SSH expertise responds to the policy questions. There is an art to assessing and brokering useful connections that go beyond those identified explicitly by applicants themselves.

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