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Public engagement with energy: broadening evidence, policy and practice

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Summary

1. The transition to a low carbon energy system is a social and technical challenge that will not be achieved without the meaningful engagement of wider society.
2. While there have been public engagement successes, existing approaches focus on isolated instances of engagement in specific parts of the energy system.
3. A broader, whole systems approach to public engagement with energy is needed to build on major advances in the theory and practice of participation in recent years.
4. New approaches to mapping system-wide public engagements with energy can provide more comprehensive evidence to inform policy developments and social change.
5. This briefing reports on one of the first examples of this, a systematic mapping of UK public engagement with energy between 2010-2015, undertaken as part of a UK Energy Research Centre project.
6. The systematic mapping shows that public engagement with energy is much more diverse than often assumed, extending beyond mainstream social acceptance and behavior change approaches, to encompass emerging, citizen-led, and grassroots forms of engagement and action.
7. This broader approach provides additional social intelligence about public values and concerns that may present barriers, and reveals untapped forms of social innovation that can be harnessed, to assist low carbon transitions.
8. This mapping provides new insights into how multiple forms of engagement interact as part of a wider ecology of energy participation. This helps identify positive synergies between engagements to accelerate low carbon transitions.
9. A more holistic and joined-up 'whole-system' engagement strategy will require new organisational arrangements. An open access 'observatory' which continually updates evidence of UK energy public engagement would be a major step forward in ensuring all actors are better informed. It could also advise on good practice for different forms of engagement and how they can be more effectively responded to.

Low carbon energy transitions depend on public engagement

The task of transitioning to more sustainable and low carbon energy systems has become a defining challenge of our age. It demands changes in how societies produce, store, distribute, use and relate to energy on an unprecedented scale.

Most efforts to decarbonise the UK energy system in line with Government targets focus on technical aspects of the problem, such as costs, infrastructures and technological change.

> It is increasingly recognised that the transition to a low carbon energy system is a social challenge that will not be achieved without the meaningful engagement of wider society. [1]

In the past citizens have been viewed as passive consumers with little role in broader energy systems. They are now becoming more active and visible at the dawn of a low carbon era marked by alternative and more distributed forms of energy production, and an increasing emphasis on energy demand and efficiency.

In the current climate, public engagement can no longer be ignored. Failure to account for social values in decision-making can lead to public resistance and pose barriers to the adoption of low carbon policies and technologies,[2] or otherwise risk ineffective implementation.[3] Public engagement also opens up options for carbon reduction that technical measures cannot reach, whether in terms of shifting ways of living and everyday practices on to more sustainable paths,[4] or harnessing the initiative of citizens to develop bottom-up actions to tackle climate change and develop new energy solutions.[5] Beyond this there are calls for deeper democratic engagement to steer the direction of energy transitions and ensure they are governed in fairer and more equitable ways.[6]

The role of people is therefore crucial to achieving more sustainable and low carbon energy futures – as consumers, practitioners and citizens.

Beyond engagement silos

It is clear that new ways of thinking about and practicing public engagement with energy are needed.

UK energy policy and engagement practice tends to focus on two dominant areas of societal engagement. First is the area of behaviour change. Evidence shows well-designed behaviour change programmes can achieve energy savings of 3-10%.[7] Going further requires an understanding of how energy use is structured by everyday practices and wider social and infrastructual factors.[8] Second is the area of public opinion and consulting citizens on low carbon policies and technologies, often in the hope of gaining 'social acceptance'. Deliberative and public dialogue approaches where citizens and experts learn through a two way process, with views feeding into policy decisions, have seen some success in this regard as shown through the UK Government funded Sciencewise programme.[9]

But while there has been some notable successes, a weakness of current approaches is the way in which they are siloed, each focusing on specific forms of public engagement in particular parts of the wider energy system.[10]

Behaviour change studies, for example, tend to centre on reducing energy demand in the home or workplace. Public opinion research often focuses on sites of invited public deliberation and questions of 'social acceptability' of low carbon energy policies and technologies. Social movement studies and transitions management approaches respectively home in on sites of protest or activism and sites of 'social innovation'.

Each of these approaches adopt specific (often mutually exclusive) definitions of public engagement with energy and what it means to participate well. In research communities different disciplines or funding programmes often align with one or a few of these approaches. Within policy making circles different approaches can get housed in different departments, leading to a fragmentation of effort.

A broader systemic approach to engagement

A broader, system-wide perspective on public engagement with energy, reflects the current 'state of the art' in the theory and practice of public participation.

Leading edge work on how to bring about effective public deliberation and debate on crucial issues like our collective energy futures has shifted from trying to perfect discrete mini-public fora that are representative and inclusive of the wider public, to approaches more interested in building an effective 'deliberative system' where multiple forms of public involvement can flourish.[11]

The same goes for energy-related practices. Here interest is moving from a focus on the dynamics of social practices relating to energy consumption and use in the home, transport and workplace, to understanding how they connect up to form wider 'systems of practice'[12] – including practices of policy-making, regulation, design, and knowledge production – in shaping energy systems.

Work focused on public engagement with science and technology is also undergoing a shift from imagining engagement as either one-way science communication or two-way public dialogue events, to a broader perspective of diverse forms of public engagement that interrelate in wider 'ecologies of participation'[13] and how they relate to institutions and political cultures in specific national settings.[14]

Such systemic thinking about public engagement with energy has been applied in a UK Energy Research Centre (UKERC) project on 'Systemic participation and decision-making'. The project seeks to explore conceptually, methodologically and empirically what it means to think about public engagement and participation in energy transitions from a relational 'whole systems' perspective.

This builds on and goes beyond existing work that has elicited public attitudes about energy system change in discrete invited participation events like surveys and deliberative workshops.[15] New approaches can map diverse forms of public engagement with energy and understand their interrelations within energy systems.[16]

Mapping public engagement with energy

A number of interesting new methods are emerging that can assist with the challenge of mapping multiple forms of public engagement across wider issues and systems. These range from digital method technologies such as issue mapping, controversy mapping and sentiment analysis[17] through to forms of meta-analysis, comparative case analysis and systematic review.[18]

The mapping approach developed in this UKERC project is inspired by such methods and is based on systematic review methodology (see Box 1 below). This systematic mapping has produced a comprehensive evidence base of 258 cases of UK public engagement with energy between 2010-2015.[19]

Box 1: The systematic mapping comprised the following steps:

1. **Scoping**: an initial literature review to scope the framework for analysis and search terms.
2. **Expert panel feedback**: on the analytical framework and search terms.
3. **Searching and screening**: through systematic searches of academic, grey literature and the media based on synonyms for key terms of 'participation', 'the public' and 'energy issues'.
4. **Document analysis**: the 258 cases of UK public engagement with energy identified in the review were analysed for key patterns and trends in energy participation.
5. **Case study analysis:** a subset of 30 cases reflecting the diversity of features in the wider corpus were subject to more detailed analysis.

A guiding principle of the systematic review was to gain a deeper understanding of the diverse ways in which publics engage with energy. The review opened up and used multiple search terms for the 'who', 'what', 'how' and 'where' of UK public engagement with energy. This approach allowed the review to not only reveal the dominant and popular ways in which publics engage, but also revealed those forms of energy engagement that are more marginal, routinely excluded or currently emerging.

As shown in Figure 1 the cases of public engagement identified revealed by the mapping showed a good geographical spread across the UK, with 72 of the cases being UK-wide across all the devolved administrations.

The systematic mapping revealed instances of public engagement with energy across academic, government, business and civil society sectors. The relative emphasis was towards academic research projects, partly due to the use of academic literature searches as one of the data sources. Commercial confidentiality of information about public engagement processes was one reason for fewer examples being identified in business settings.

Figure: 1

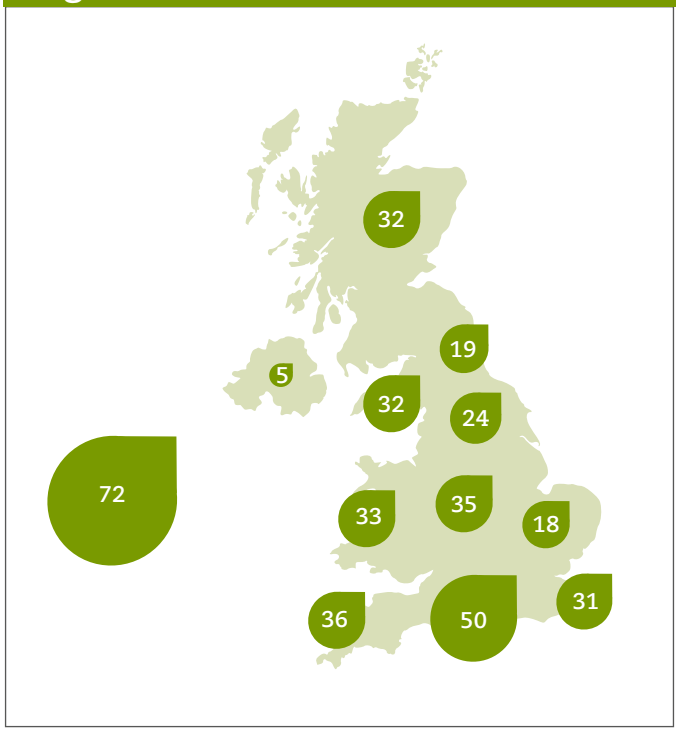


Figure 1: The geographical distribution of UK public engagements with energy

Diverse energy publics, varied engagements

The systematic mapping evidence demonstrates that UK public engagements with energy are highly diverse and varied, but are also dominated by particular approaches and techniques.

> Some forms of public engagement are more prevalent and widespread than others.

As shown in Figure 2, the most dominant approaches are forms of elicitation (such as opinion surveys, deliberative processes, and consultations) linked to social acceptance of energy policies and technologies, and behavior change processes. Both tend to be invited forms of public engagement organized by government, business or academic institutions.

Figure: 2

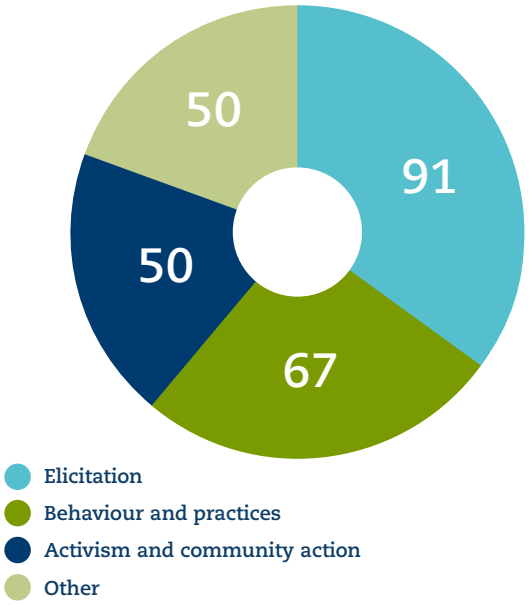


Figure 2: Forms of public engagement in UK energy transitions

Evidence from the systematic mapping shows public engagement with energy to be much more varied than often assumed. This diversity is shown in Figure 3. Even within the dominant mode of *institutionally-led* engagement to elicit public views on energy *issues* or prompt public *actions*, a wide range of existing and emerging forms of engagement exist.

Figure: 3

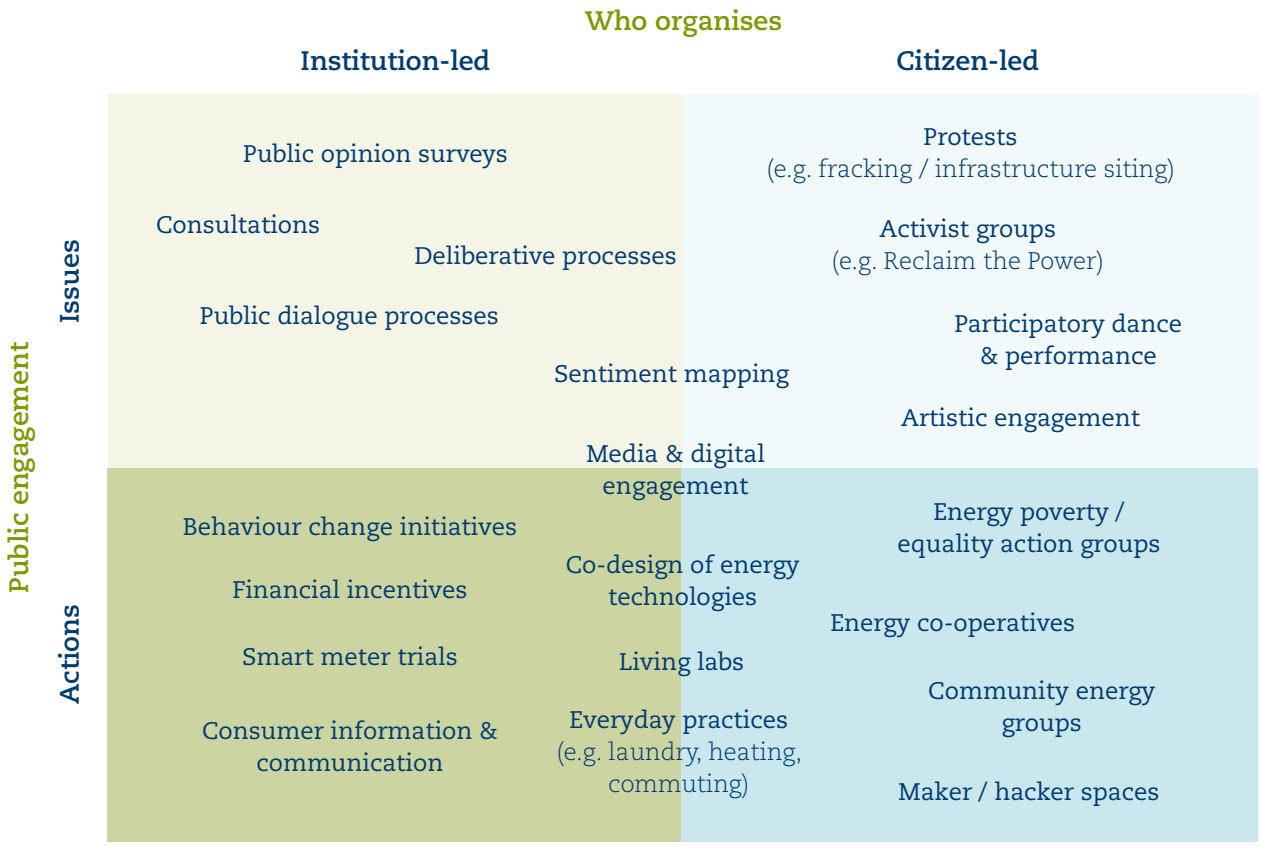


Figure 3: The energy public engagement matrix

The UKERC mapping findings stress the need to go beyond dominant societal acceptance and behavior change approaches, to embrace the wider range of citizen-led and 'bottom-up' public engagements that are continually emerging.

What is striking about the systematic mapping evidence is the way it opens up to forms of engagement in the right-hand column of Figure 3. In the top right quadrant, this includes *citizen-led* forms of public involvement, in debating *energy issues*, developing alternative visions of sustainable futures, and challenging existing policies through forms of activism, protest, arts-based engagement, and the use of digital spaces and social media. The mapping evidence shows that these forms of engagement raise public concerns that can be missed by processes situated in the left column of the energy public engagement matrix (above).

As shown in the bottom right quadrant, the systematic mapping also included instances of '*bottom-up' citizen action* through forms of social and grassroots innovation, community energy, Transition Towns, makerspaces, hackerspaces, and so on. The evidence shows that while these forms of engagement often get marginalised, they play an important role and should be acknowledged and properly supported by policy makers.

Broadening social intelligence about energy publics

This UKERC research shows that no single form or process of public engagement with energy can capture multiple perspectives and visions of UK energy system change once and for all. Every form of energy participation is partial and framed in particular ways, bringing forward different visions of the future, expressions of human needs, and desired transitions.

As Figure 4 shows, cases of public engagement identified in the review are framed in terms of different energy-related issues. Issues that are more immediate and close to home – such as renewable energy, energy behaviours and practices, smart technologies, and mobility – featured in many of the engagement initiatives identified. Issues that are more distant in terms of most people's everyday lives – like fracking, carbon capture and storage (CCS), and nuclear power – were an important focus in some cases of public engagement, but were fewer in number across the whole data set.

Figure: 4

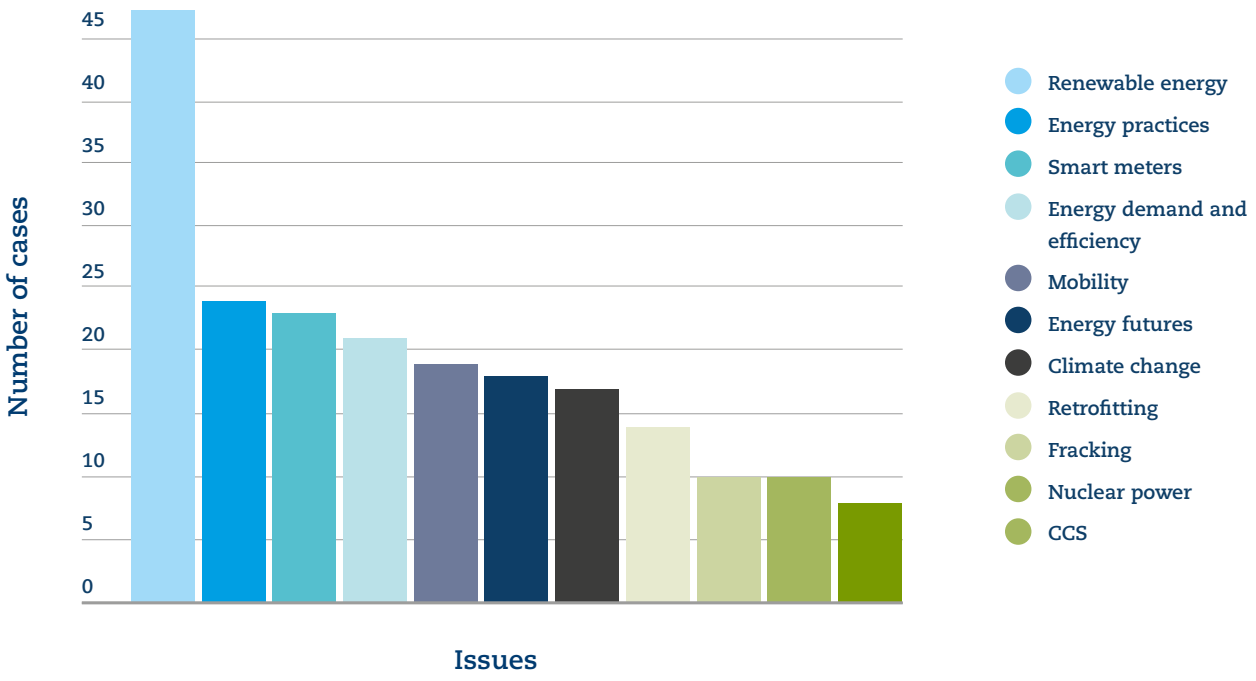


Figure 4: Key issues of UK public engagements with energy

The two examples shown in Boxes 2 and 3 demonstrate how drawing together evidence from multiple instances of public engagement with energy – from institution-led to citizen-led – can provide more robust social intelligence about the views and activities of energy publics. They also reveal that dominant approaches, such as surveys, focus groups and public dialogue orchestrated by government and industry, can miss important aspects of 'social intelligence' needed to make robust decisions about low carbon energy futures.

Box 2: Revealing the social issues of smart technologies

With respect to smart technologies addressing energy demand in the home, some of the cases identified used survey-based approaches grounded in behavioural economics and social psychology to engage citizens. These cases focused on providing evidence on how to make smart technologies more publically acceptable or technically feasible.

Other cases in the wider dataset challenged these findings and provided additional evidence. In these cases, the focus was on how the performance of smart technologies depends on their interaction with competing practices and circumstances in everyday life, and raise concerns over issues of equity, control, privacy and governance over how smart energy technologies are implemented.

These insights show how approaches to mapping energy participation can assist existing forms of engagement, helping provide a broader and more comprehensive evidence base to inform policy developments and social change. This includes a better appreciation of underlying concerns and possible barriers to low carbon transitions.

Box 3: Fracking: broadening evidence about matters of public concern

On the possible role of hydraulic fracturing (fracking) in the UK energy system, some cases identified in the systematic mapping engaged the public in opinion surveys and deliberative processes (such as a public dialogue commissioned by DECC in collaboration with Sciencewise-ERC). These cases tended to narrow the conversation down to risks and impacts to the environment and health, and how impacted communities might be best engaged and compensated.

The broader remit of this review revealed additional cases of engagement – ranging from academic social science analyses, to forms of activism and protest around proposed fracking sites in the UK. These in turn captured crucial public concerns over equity, the direction of our energy transition, the underlying purposes of fracking, who stands to benefit and bear the risks, and the lack of public involvement.

Harnessing untapped citizen energies

This UKERC report demonstrates that no single UK energy public exists to be discovered and more accurately represented or engaged, but instead reveals diverse 'publics': users of energy technologies; consumers; householders; aggregated populations; unaffected or neutral publics; affected, active or marginalized communities; active citizens and activists (see Figure 5).

On the one hand, this shows that the challenge of knowing and mobilising energy publics is more difficult than identifying or forming groups of individuals as seen in market segmentation, survey and deliberative work. This is because 'publics' are an outcome of, not merely an input to, practices of public engagement with energy.

On the other hand, the systematic mapping evidence reveals several instances where citizens are assisting with low carbon energy transitions in their own terms as innovative citizens. This includes public engagement in community energy initiatives, intentional communities, Transition Towns, and forms of social innovation through things like community currencies (as shown in the right-hand column of Figure 4).

The systematic mapping also highlighted emerging forms of public engagement that often go 'under the radar', such as arts-based projects, diverse practices in domestic settings, and forms of public engagement in the digital space.

Citizen-led and emerging forms of public engagement should not be viewed as a threat to achieving low carbon transitions, but rather as opportunities to harness the motivations and resources of citizens. Initiatives also need to be actively supported and encouraged by government, private sector and science institutions.

Figure 5

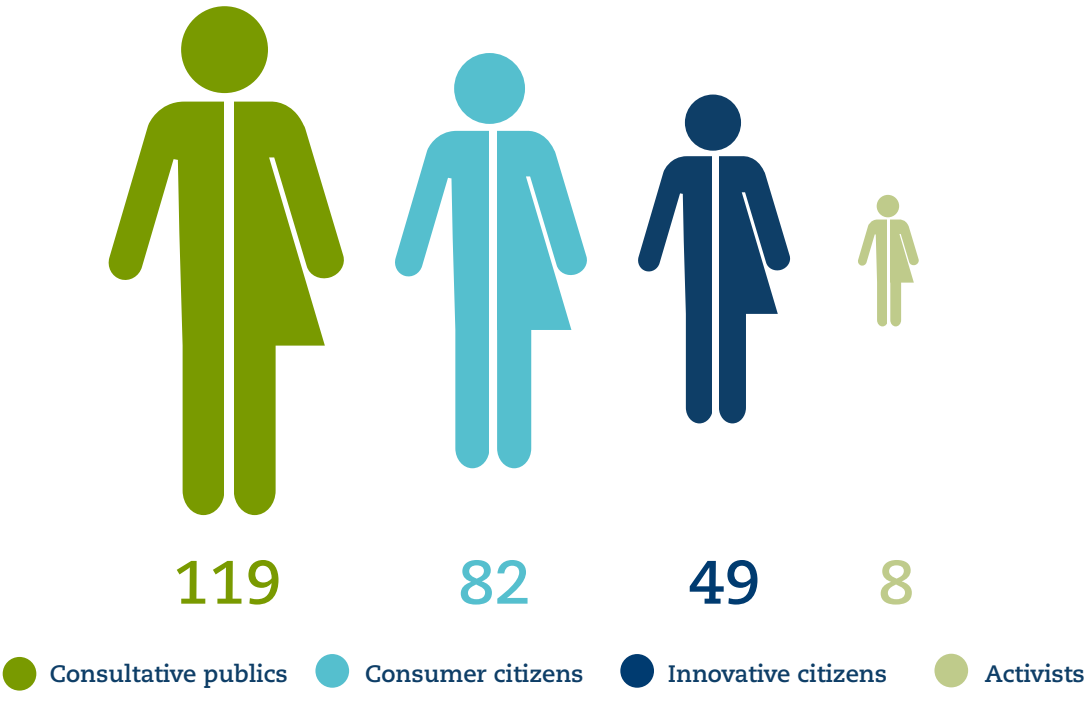


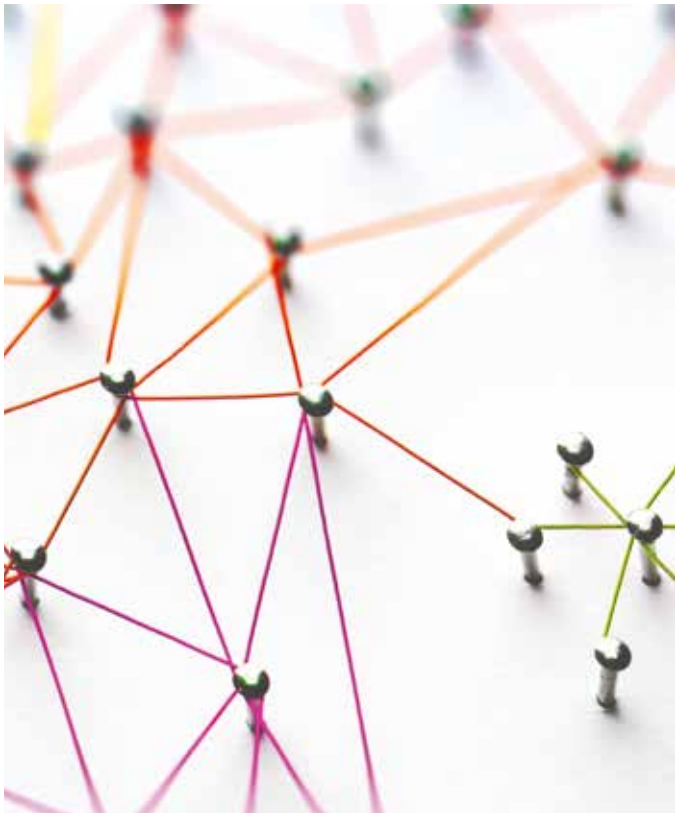
Figure 6: Who participates in energy transitions?

An ecology of energy participation

This research offers new evidence on the interactions and connections between different forms of public engagement, revealing a wider 'ecology of participation' in the UK energy system. This evidence provides a richer understanding of the dynamics of energy participation and important additional evidence for those seeking to steer low carbon energy transitions.

Examples of these additional insights produced by the systematic review include the following points.

- **Positive interactions between public engagements**, for example how citizens involved in deliberative public dialogues can go on to shift their energy consumption behaviours. There is potential to harness synergies between seemingly separate forms of engagement.
- **Engagement breeds engagement.** Some cases can evolve from one form of public engagement to another. For example, the Back Balcombe group which formed as an anti-fracking protest group, morphed over time into a community energy initiative seeking to install solar panels and contribute to lower carbon energy production.
- **Public engagements shape each other**. Some cases show how changes in technologies and social practices in one part of the system – like home microgeneration, or changing modes of paying for electricity supply – have implications for other social practices and forms of engagement in energy transitions, such as energy use in the home.
- **Identified gaps help shape more inclusive and equitable engagement**. This research provides an overview of forms of public engagement that are currently missing, excluded or underrepresented, which can inform decisions about developing new opportunities for engagement in more equitable and inclusive ways.
- **Effective mapping aids the transfer and translation of good practice**. This mapping provides evidence on how different models of public engagement circulate between different regions of the UK and internationally. More effective mapping enables better transfer and translation of engagement innovations, and develops an understanding of the effects they have in different contexts.
- **Public engagement is shaped by the wider energy system,** including energy infrastructures, institutions, regulations, political economy, and the political culture of the UK. This is illustrated across cases in the systematic mapping, adding crucial insights into the systemic and structural relations that govern public engagement with energy.



Recommendations

In order to move towards a broader whole systems approach to engage society in low carbon transitions we need to strengthen our understanding and use of diverse forms of public engagement. Practical steps include:

- **Develop and experiment with mapping methods** to provide broader and more comprehensive social intelligence about energy public engagement – including digital methods and systematic reviews.
- **Create a UK observatory of public engagement with energy** and translate this evidence to help decision makers in government, industry, civil society, research communities and the media in 'real time'.
- **Build organisational capacities to better understand and respond to broader social intelligence on public values,** answering questions about the low carbon transition, including: what is it for? Who has control? How do we make it fair and inclusive? What are the benefits to the public? Who bears the risks?
- **Create experiments and demonstration projects** to explore how evidence from mapping methods can help inform, shape and enhance energy public engagement practice – for example in helping to address gaps and inequalities in the energy participation landscape and informing the design of new engagement processes.
- **Develop 'whole-system' strategies and initiatives for societal engagement** in realising UK low carbon energy transitions, joining up key public engagement initiatives from across local government, business, academia and civil society to make them become more than the sum of their parts.
- **Cultivate a more responsible approach to public engagement with energy**. One which is open about how evidence about energy publics is always uncertain, framed in particular ways, and never complete.

References

1 Sovacool, Benjamin (2014) 'What Are We Doing Here? Analyzing Fifteen Years of Energy Scholarship and Proposing a Social Science Research Agenda', *Energy Research & Social Science* 1: 1–29; Miller, Clark, Jennifer Richter, and Jason O'Leary (2015) 'Socio-Energy Systems Design: A Policy Framework for Energy Transitions', *Energy Research & Social Science* 6: 29–40; Chilvers, Jason and Nick Pidgeon (2016) 'A social energy transition'. In *Review of UK Energy Policy: A UKERC Policy Briefing*. London: UKERC.

2 Parkhill, Karen, Christina Demski, Catherine Butler, Alexa Spence and Nick Pidgeon (2013) *Transforming the UK Energy System: Public Values, Attitudes and Acceptability – Synthesis Report*. London: UKERC; Bellamy, Rob, Jason Chilvers and Naomi Vaughan. (2016) 'Deliberative Mapping of options for tackling climate change: Citizens and specialists 'open up' appraisal of geoengineering', *Public Understanding of Science*, 25(3): 269-286; Williams, Laurence, Phil Macnaghten, Richard Davies and Sarah Curtis (2017) "Framing 'fracking': Exploring public perceptions of hydraulic fracturing in the United Kingdom', *Public Understanding of Science* 26(1): 89–104.

3 Hargreaves, Tom, Mike Nye and Jacquie Burgess (2010) 'Making energy visible: A qualitative field study of how householders interact with feedback from smart energy monitors', *Energy Policy*, 38: 6111-6119.

4 Shove, Elizabeth and Gordon Walker (2014) 'What is Energy For? Social Practice and Energy Demand', *Theory, Culture & Society* 31(5): 41-58.

5 Seyfang, Gill and Alex Haxeltine (2012) 'Growing grassroots innovations: exploring the role of community-based initiatives in governing sustainable energy transitions', *Environment and Planning C: Government and Policy*, 30: 381-400.

6 Stirling, Andy (2014) 'Transforming power: Social science and the politics of energy choices', *Energy Research & Social Science*, 1: 83–95.

7 Cabinet Office Behavioural Insights Team and Department for Energy and Climate Change (2011) *Behaviour Change and Energy Use*. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60536/behaviour-change-and-energy-use.pdf (last accessed: 6/5/2016); RAND Europe (2012) *What Works in Changing Energy-Using Behaviours in the Home? A Rapid Evidence Assessment*. London: DECC.

8 Hargreaves, Tom (2011) 'Practice-ing behaviour change: Applying social practice theory to pro-environmental behaviour change', *Journal of Consumer Culture* 11: 79-99.

9 Pallett, Helen and Jason Chilvers (2013) 'A decade of learning about publics, participation, and climate change: Institutionalising reflexivity?' *Environment and Planning* A 45: 1162-1183.

10 Chilvers, Jason and Noel Longhurst (2016) 'Participation in Transition(s): Reconceiving Public Engagements in Energy Transitions as Co-Produced, Emergent and Diverse', *Journal of Environmental Policy & Planning* 18: 585-607.

11 Parkinson, John, and Jane Mansbridge (2012) *Deliberative Systems: Deliberative Democracy at the Large Scale*. Cambridge: Cambridge University Press; Burall, Simon (2015) *Room for a View: Democracy as a Deliberative System*. London: Involve. http://www.involve.org.uk/blog/2015/10/20/room-for-a-view/ (last accessed: 6/5/2016)

12 Watson, Matt (2012) 'How Theories of Practice Can Inform Transition to a Decarbonised Transport System', *Journal of Transport Geography* 24: 488–96.

13 Chilvers, Jason, and Matthew Kearnes. (eds.) 2016. *Remaking Participation: Science, Environment and Emergent Publics*. Abingdon: Routledge.

14 Jasanoff, Sheila (2011) 'Constitutional Moments in Governing Science and Technology', *Science and engineering ethics* 17(4): 621–38.

15 Nick Pidgeon, Christina Demski, Catherine Butler, Karen Parkhill and Alexa Spence (2014) 'Creating a national citizen engagement process for energy policy', *Proceedings of the National Academy of Sciences USA*, 111(4): 13606–13613.

16 Chilvers, Jason, Helen Pallett, and Tom Hargreaves. (2015) *Rethinking Energy Participation as Relational and Systemic*. London: UKERC.

17 Rogers, Richard (2013) *Digital Methods*, Cambridge MA: MIT Press; Marres, Noortje (2017) *Digital Sociology: The Reinvention of Social Research*, Cambridge: Polity Press.

18 See for example Chilvers, J. and Longhurst, N. (2016) 'Participation in Transition(s): Reconceiving Public Engagements in Energy Transitions as Co-Produced, Emergent and Diverse', *Journal of Environmental Policy & Planning* 18: 585-607.

19 Helen Pallett, Jason Chilvers and Tom Hargreaves (2017) *Mapping energy participation: A systematic review of diverse practices of participation in UK energy transitions*, 2010-2015. London: UKERC.

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