

Paying for energy transitions: public perspectives and acceptability

UKERC Policy Briefing







Executive summary

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In the UK, energy policy is largely directed toward achieving a diverse, secure and affordable low-carbon transition. While current and future citizens will receive multiple benefits from energy system changes – such as improved energy efficiency – they are also likely to bear the costs, as new systems are funded either from taxation or directly through energy bills. In this briefing, we explore public views on paying for that transition.

- We find widespread public support for transition to a low carbon, reliable and affordable energy system.
- The British public assigns primary responsibility for paying for energy transitions to energy companies and government because they are perceived to have the financial means and structural power to effect major change.
- People are willing to accept some cost on their bills to fund the energy transition (between 9-13%), but this is dependent upon a number of conditions.
- Public willingness to contribute is conditional upon energy companies and government being committed to do the same, although currently neither are particularly trusted in this regard.
- Peoples own financial circumstances are not necessarily the driving factor in their acceptance of costs, with procedural and distributive justice concerns also important.
- Distrust in energy companies related to beliefs about profit motives being the primary driver for decision-making, interfering with commitments to energy transition goals.

- Distrust in government was primarily based on the perception that politicians are too closely connected to the energy industry, leading to inadequate and ineffective regulation of energy companies.
- If issues concerning transparency, perceived collusion and unfair distribution of costs are not addressed, any increased financial burden on the public may result in further distrust and public opposition.
- We recommend greater transparency and accountability in relation to energy costs and wider decision-making and practices, alongside innovative thinking on how to fairly distribute costs across society.
- Profits were salient in discussions, hence it may be important to show how energy company decisions are not driven by profits alone. To be credible, this will require evidence that government is not being overly influenced by energy companies. Ultimately, it may be worth considering alternative models of energy system governance, alongside clear communications about how reinvestment is funded.

Public views on paying for energy system change

In the UK, energy policy is largely directed toward achieving a diverse, secure and affordable low-carbon system transition, primarily in order to meet the future statutory carbon budgets mandated by the UK Climate Change Committee¹. In this briefing, we explore public views on paying for that transition.

Energy system transition is typically discussed in terms of some combination of supply technologies, efficiencies in energy end use, and the economics of change. But citizens also have multiple roles to play in that change². People will be engaged most obviously as the future consumers of energy, while as active agents they will at times support or object to particular elements of transition proposals, both in terms of technologies and policies. As the energy system diversifies, in part becoming more localised and flexible, individuals and communities will increasingly produce their own energy as well as sell energy-related services such as micro-scale electricity generation and storage. There are many potential benefits of these changes, for example improved energy efficiency, falling technology costs, and avoided climate damage, nonetheless current and future citizens will also bear the costs of the lowcarbon transition. New infrastructure and systems will be funded either indirectly through taxation or directly from energy bills.

In its 2017 Clean Growth Plan the UK Government's stated approach to reducing emissions aims "to meet our domestic commitments at the lowest possible net cost to UK taxpayers, consumers and businesses"3,4. The assumption that people only care about the cheapest possible reliable supply has been challenged by previous UKERC research conducted at Cardiff⁵⁻⁸. This work clearly shows that public understandings of the acceptability of sustainable system change are affected by a range of personal and social values over and above the costs appearing on their bills9: attitudes and preferences towards energy transitions are bound up with people's views on system governance, financing and charging arrangements, alongside issues of justice and trust. While the issue of cost cannot be ignored, an appreciation of public values provides an additional basis for understanding the core reasons for public acceptance or rejection of different energy system components and processes, including proposals for funding the low-carbon transition.

In this briefing we summarise findings from a project that has examined:

- · How members of the public ascribe roles and responsibilities for funding transitions among different actors in the energy system (e.g. government, energy companies, British public/consumers);
- Whether people are personally willing to accept costs associated with energy transitions, and
- How normative considerations of justice and fairness, as well as trust in energy companies and government, influence people's ascription of responsibility and personal willingness to accept costs.



Methodology and Data

The research employed a mixed-methods design that combined an online survey of the general public in Great Britain (N=3,150) followed by five focus groups conducted in Birmingham (England), Cardiff (Wales), Glasgow (Scotland), and two in London (England). An annex published together with this briefing provides further methodological details on the analysis and data underpinning this briefing. In addition, some of the findings have been published in the peer reviewed literature¹⁰ with a further working paper from the focus groups available from the authors¹¹. Fieldwork for both the survey and focus groups was conducted in 2016, prior to which average UK real electricity bills had risen between 2010 and 2014, while wholesale costs of gas and electricity remained similar. From 2014-2016 bills were relatively stable while wholesale costs actually fell¹².

People strongly support energy system change

In the current research we presented participants with four goals that energy transitions might address. These represent policy-relevant issues including those that are currently covered by environmental and social levies on energy bills:

- Ensuring energy is affordable for all households
- Reducing the use of fossil fuels (like coal, gas, and oil) and increasing the use of low-carbon energy sources
- Reducing overall energy use in the UK
- Ensuring a reliable energy supply

Both the survey and focus group findings confirm that people ascribe importance to all of these goals, with a particularly strong emphasis on affordable and reliable energy. However, one goal did not necessarily emerge as the overriding priority; instead participants expected that all four issues would be addressed in an interlinked manner.

We conclude that there is widespread public support for energy transitions to ensure a low carbon, reliable and affordable energy system.

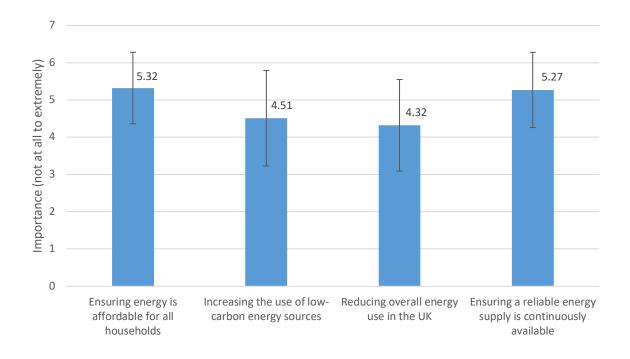


Figure 1. Average (mean) importance ratings across four energy transition goals. Error bars represent ±1 standard deviation.

Responsibility for financing energy transitions

It is clear from our research that people typically assign responsibility for paying for the energy transition to multiple actors involved in the governance of energy systems, including government, energy companies and current and future UK residents¹⁰. In that sense, people do not believe responsibility lies with one actor alone, but that this should be distributed according to appropriate roles and competences¹³. Figure 2 shows how participants, on average, distributed responsibility for costs associated with each of the four energy transition goals presented in the survey.

It is clear that energy companies, followed by government, are thought to hold the main responsibility to fund energy transitions. This is related to beliefs about their competence and power to make the necessary changes, and because this is believed to be their role within energy systems, and society more widely. Both energy companies and government are also perceived to hold significant responsibility because of their financial power – energy

companies because they make profits from the existing system, and government because they collect taxes and levies.

There was also a belief that people benefit from the energy system and that the low-carbon transition is in everyone's interest. Thus, participants also ascribed some responsibility to the UK public. In the focus groups, however, participants thought that the public was already paying a disproportionate share, noting that most money that energy companies and government receive comes from bills, levies and taxes paid by the public. In light of this, it was considered unfair to ask the public to take on more of the direct financial burden, while energy companies were perceived to be protecting their profit margins and contributing little.

In summary, participants assigned primary responsibility for paying for energy transitions to energy companies and government because they are perceived to have both the financial means and structural power to effect major change. Some responsibility was also assigned to the general public as consumers of energy, although participants saw themselves as already contributing too much, especially in comparison to energy companies.

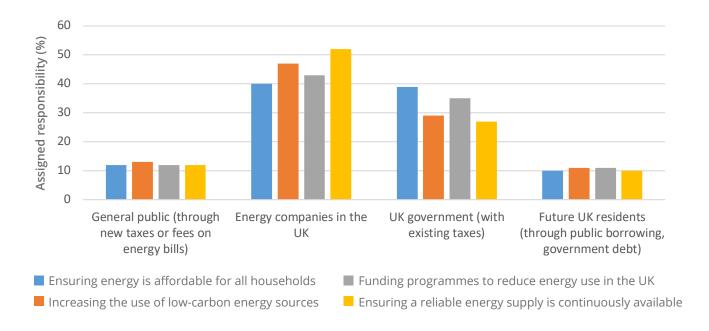


Figure 2. Average (mean) percent of responsibility assigned to the general public, energy companies, UK government and future UK residents for costs associated with each of the four energy transition goals.

'I think the energy companies are making so much money that they can stock up some of it instead of asking us to contribute more to their profits, they can put some of their profits towards it. I don't mind paying a small amount towards it, but they are making such huge amounts'

Monika, London



People's ascription of some responsibility to the public to pay for energy transitions is also mirrored in our finding that people are personally willing to accept costs associated with energy transition goals (including on bills):

- Survey respondents on average accepted between 9-13% of their energy bills going towards environmental and social levies (however we caution on how to interpret these numbers – see box on page 5). This was slightly higher than the 7% we presented as going (in 2016) towards these levies14.
- · Average acceptance levels were similar across the four goals presented to participants (see annex for details); highest for 'ensuring a reliable supply' (12.7%) followed by 'helping vulnerable and disadvantaged groups' (9.6%), 'reducing energy use' (9.4%) and 'increasing low-carbon energy' (9.1%).
- The UK Committee on Climate Change estimates that 15% of bills will need to go towards levies by 2030 to meet emissions reductions required by the fifth carbon budget approved by Parliament in 2016. In our survey only one out of five survey respondents found levies this high acceptable.

We conclude that people are willing to accept some cost on their energy bills for programmes to fund the sustainable energy transition¹⁰. An important caveat is that this acceptance was dependent upon a number of conditions. These are discussed in the following sections.



'You probably wouldn't even mind a few more percent [for social and environmental levies] if it generated something worthwhile, if more homes were insulated better'

Nathan, Glasgow

'They've tried, with the tariffs, to actually explain what's on your bill... the bill has to go up by 1% and you go 'aye, I agree with that, if it helps with the vulnerable, sick, pensioners or whatever'

Otis, Glasgow

Public willingness to accept energy transition costs - interpreting numbers

The exact numbers in terms of the percent people are willing to accept on their energy bills must be interpreted with caution. This is illustrated by two additional findings from our research (see annex for details):

- 1. It matters how costs are presented: In a follow-up to our initial survey, the sample was randomly split into two groups, with half asked what level of transition cost would be reasonable for the public to pay in pounds (£) and the other half asked as a percentage of their energy bill. Those asked in percentage terms indicated cost acceptance twice as high compared to those asked in pounds. It is possible that percentage numbers are simply smaller in real terms compared to the equivalent in pounds and thus attract higher acceptance ratings. This also cautions against inferring from percentage acceptance to an equivalent amount in currency, as in prior studies15.
- 2. Numbers are not judged in isolation: It also became evident from our focus group participants that the figures presented to them were not judged in isolation, but rather interpreted in relation to other beliefs and information: e.g. how much people currently pay, beliefs about energy company profits, or perceived overall affordability of energy.

Beyond financial constraints and towards energy justice

Our research shows that people's own financial circumstances (e.g. estimated energy bills, concerns about energy costs, household income) are not particularly useful in explaining their perceptions of public responsibility for energy transition costs and personal acceptance of such costs (see ¹⁰ for detailed analysis). Perceptions were instead related to a number of normative considerations¹⁶. Both the survey and focus group findings reveal the importance of justice concerns for public perceptions:

• Beliefs about **procedural justice** such as having a voice in the processes used to make decisions about the energy system, and perceptions of being treated with respect, openness, and honesty from energy companies and the government, strongly influenced attribution of responsibility. The more procedural justice was seen to exist, the higher the attribution of cost responsibility to the public as opposed to government or energy companies.

'I think sometimes it depends on who the government hear though... They don't hear us.'

Freddie, London

'We're just a small person at the bottom of the pile. We're insignificant and it doesn't really matter if the lady that lives next door to me can't afford her power so she dies in the cold. And it happened last year.'

Lewis, London

• Similarly, beliefs concerning distributive justice such as the level of agreement that low income people should pay less for energy, and perceived importance of equitable cost sharing between the general public and industry, strongly influenced personal acceptance of transition costs. The more distributive justice was valued, the higher the personal cost acceptance.

In conclusion, perceptions and beliefs about energy transition costs are based on more than financial constraints and material conditions. Procedural and distributive justice concerns are an important factor in determining people's acceptance of cost¹⁰.

Issues of distrust: profits, transparency and collusion

While people support energy transitions, and are to a degree willing to contribute financially, they also perceive important responsibilities lie with energy companies and government. As such, people's willingness to accept public and personal responsibilities to pay for energy transitions is dependent on their perceptions of these other actors. In particular, focus group participants felt strongly that energy companies and government should also contribute financially and show real commitment to energy system change.

It was also notable that this condition was not currently thought to be met. Participants were sceptical and did not trust energy companies and government on their commitment to energy system change. This distrust emerged particularly in relation to three issues:

Profits: Distrust was expressed in relation to (perceived) level of profits, how profits are used, and how the privatised energy system encourages profit motives over meeting wider transition goals such as affordability and low-carbon energy.

- In the survey, acceptance of energy company profits was a strong predictor of both personal acceptance of energy transition costs and beliefs about public responsibility for those costs¹⁰.
- On the whole, participants were dissatisfied with the level of profits that energy companies were believed to make. While not all participants rejected profit making outright, there was a strong and widespread view that energy company profits should be used in support of energy system change (rather than going to shareholders, high executive salaries or bonuses), especially if the public were asked to contribute further funding. As such, it is likely that profits are only acceptable if energy companies are seen as fair entities that are responsive to societal needs.
- Profits were considered particularly unacceptable as long as some people struggle to afford basic energy needs^{17,18} and live in fuel poverty.

'Because the businesses lie all the time. I mean, they keep... I watch the price of fuel goes up and down, fluctuates all the time. My electric bill only goes up. It never goes down.

You can't rely on a profit making company to be fair. We know we cannot rely on the government to be fair because most have some connection with one company or another anyway, so they're biased. These regulators are hired by the government, and often they are executives of the power companies. So we're in a no-win situation.'

Melanie, London

- Our survey and focus group participants generally overestimated energy company profits as reflected on bills. While this shows that the British public may be misinformed about actual profit levels, it may also reflect people's strong sense of unfair treatment from these companies. After being told that 9% of a typical dual fuel energy bill (in 2016 according to Ofgem¹⁴) represents energy company (retail) profit, some participants in the focus groups were positively surprised. However, being given this information did not tangibly change people's views or alleviate distrust. Indeed, people tended to distrust the information and some even voiced suspicion that further profit was being hidden within opaque operations and accounting practices (see 'Lack of transparency' below).
- About 27% of survey respondents supported nationalisation of the energy system. 24% thought heavy regulation of the energy industry was needed, while 36% preferred moderate regulation. Only a small minority thought the energy industry should not be regulated (11%).

Lack of transparency: In line with the importance of procedural justice beliefs, the issue of transparency (or lack thereof) emerged as a significant component of distrust within the focus group discussions:

- Participants perceived a lack of transparency across a range of issues associated with costs in the existing energy system and of energy transitions and related decision-making. As a result, participants often did not trust information published by energy companies or other actors (including government and the regulator). This included information and clarity regarding profit levels, profit use, links between wholesale and retail prices, energy tariffs and what costs constitute an energy bill.
- Concerns were also voiced regarding future cost increases in the name of energy transitions (e.g. additional or increased levies on bills) and whether these would be visible in the context of a currently opaque system. Some group members expressed scepticism that this money would be passed on by energy companies and/or spent appropriately by government.
- Greater transparency (i.e. being able to trace finances and motives) was seen as a precondition for being able to hold energy companies and government to account.

Collusion: Distrust also emerged in relation to suspected collusion between energy companies and government, which was considered problematic for ensuring that affordable and clean energy systems are delivered and paid for in a fair manner.

 Pursuit of profits was seen to interfere with both energy companies' and government's motives to invest in energy transitions and long-term planning. Rather than representing public interests, the government was often suspected to be colluding with energy companies.

- Existing regulation was not perceived to be adequate and stricter regulation and separation between energy companies and politicians/government was suggested.
 In particular, participants thought that it was a problem that politicians are lobbied by the energy industry and switch between a political career and working on the boards of companies, including energy companies.
- Although trust in government was low, it still appeared to be relatively higher than trust in energy companies.
 Crucially, distrust in government seemed to stem largely from perceived close connections with the energy industry.

It is clear that stated public willingness to contribute towards the costs of energy transitions is conditional upon other actors, such as energy companies and government, being committed to do the same. Currently, neither are particularly trusted in this regard. Monitoring (and perhaps reducing) profits and perceived collusion between energy companies and government, as well as increasing transparency to enable scrutiny of profits and collaboration, were key conditions for public willingness to contribute towards costs of energy system change. If these issues are not addressed, any increased financial burden placed on the public might result in further distrust and public opposition.

Support for specific policies

In the survey, we gave respondents brief information about current policies designed to support a low-carbon energy transition (e.g. Renewables Obligation, Feed in tariffs, Energy Company Obligation, Warm Homes Discount). These policies all received appreciably more support than opposition. However, lower support was evident if increased costs associated with these programmes were levied on energy bills. In line with other findings from this project, follow-up questions revealed people questioned why the public should shoulder all of the potential increased costs associated with these programmes while energy companies are not contributing.

Brexit and energy bills

We asked participants whether they thought the Brexit vote would have any effect on energy bills. About half of the survey respondents thought there would not be an effect, but 38-44% thought that there would be an increase in energy bills (11-12% expected a decrease). The focus group data reveals a similar mix in views. However, participants were mostly unsure and referred to the general uncertainty concerning Brexit.

Further discussions among participants revealed multiple reasons for believing energy prices would go up. These focused particularly on the UK's dependence on Europe and beyond, including foreign ownership of energy companies, as well as discussions of how prices for most products and goods might rise because of issues concerning trade and the weakening of the Pound. Perhaps most striking was a belief that energy companies were likely to use Brexit as an excuse to raise prices regardless of what the actual effect might be; further evidencing the deep distrust that characterised some of the discussions.

Recommendations

People are willing to contribute towards paying for the sustainable energy transition but this is based on far more than their financial means and circumstances. In particular, people also expect other energy system actors to share that responsibility. As such our first recommendation is:

 It is important that government and the energy industry show strong and clear commitment to low-carbon energy system change, in order to harness public support including financial support.

Our research shows that currently the British public does not believe this to be the case. Instead, considerable distrust is evident:

Distrust in companies: People believe that the majority of energy companies are driven primarily by profit motives leading to inadequate commitments with regards to energy transition goals such as investing in low-carbon energy and ensuring energy affordability.

Distrust in government: The government, and politicians in particular, are seen as too closely connected to the energy industry, leading to inadequate and ineffective regulation of energy companies and their opaque practices.

It is clear that the public has a number of justice and fairness concerns that need to be addressed. In particular, beliefs concerning distributive justice (i.e. how costs are distributed across society) and procedural justice (i.e. respectful treatment, transparent practices and decision-making) are important for public acceptance of responsibility and costs.

Below we provide further recommendations on ways to address these justice concerns:

- 2. Ensuring greater transparency and accountability. This includes providing clearer, more understandable information in relation to energy costs (e.g. tariffs, energy bills) but also greater transparency of wider decision-making and practices including investments, accounting, and the links between wholesale and retail costs.
- 3. Greater clarity and justification is needed for how money is spent by government and energy companies (especially concerning profits). However, simply providing more information to address misconceptions is unlikely to resolve issues of distrust if people still believe that the balance between profit and reinvestment is inappropriate. For some, profits will be difficult to accept unless energy affordability, especially for vulnerable groups, is significantly improved.
- 4. Innovative thinking on how to distribute current and future costs in a fair manner across society. For example, exploring options for distributing costs according to the greatest ability to pay (via general taxation rather than on bills¹⁹), and across different actors in the energy system.
- 5. Finding ways to credibly show that energy companies are not driven by profits alone. In the current privatised system, which was perceived by participants to encourage excessive profit making, this may only be achieved by more effective and clearly evidenced regulation that requires energy companies to financially contribute to, and be visibly involved in low-carbon energy system change.
- **6. For regulation to be seen as credible,** robust and consistent evidence of clearer separation between government and the energy industry is recommended.

Action has to be substantial, sustained and address multiple issues simultaneously.

While we acknowledge that action is already being taken by government and the regulator (e.g., the Competition Market Authority investigation into retail markets, introduction of a price cap for variable tariffs, increased information on bills, and steps to ease customer switching), it remains to be seen whether these will help address some of the systemic issues identified in our research.

It is clear that trust has been eroded over a long period of time and it is equally likely that public confidence will also take a long time to improve. Sustained actions are therefore needed to support this. In some cases, more fundamental structural action might also be required, for example considering alternate governance structures, including not-for-profit arrangements as with some water utilities

This UKERC research has provided a diagnosis of some of the key societal issues involved in moving the energy transition forward, but it is beyond our scope to provide detailed solutions. For this, further innovative thinking and novel policy experimentation are also likely to be required. Addressing the issues underlying the trust deficit will be challenging, but this is nonetheless important if we are to ensure that there is to be broad societal consent and engagement with the low-carbon energy transition.



References

- UK Climate Change Committee (2018). Reducing UK emissions – 2018 Progress Report to Parliament. Retrieved on 27.09.18 from https://www.theccc.org.uk/publication/ reducing-uk-emissions-2018-progress-report-toparliament/
- 2. Pallett, H., Chilvers, J., & Hargreaves, T. (2017). *Mapping energy participation:* A systematic review of diverse practices of participation in UK energy transitions, 2010-2015. London: UKERC.
- 3. H.M. Government (2017). The Clean Growth Strategy: Leading the Way to a Low Carbon Future. Department for Business, Energy and Industrial Strategy.
- Helm, D. (2017). Cost of energy review. Retrieved on 09.08.18 from https://assets.publishing.service.gov.uk/ government/uploads/system/uploads/attachment_ data/file/654902/Cost_of_Energy_Review.pdf
- Butler, C., Demski, C., Parkhill, K.A., Pidgeon, N.F.,
 Spence, A. (2015). Public values for energy futures:
 Framing, indeterminacy and policy making.
 Energy Policy, 87, 665–672.
- 6. Demski, C., Butler, C., Parkhill, K.A., Spence, A., & Pidgeon, N.F. (2015). Public values for energy system change. Global Environmental Change, 34, 59-69.
- 7. Parkhill, K.A., Demski, C., Butler, C., Spence, A., & Pidgeon, N.F. (2013). Transforming the UK energy system: Public values, attitudes and acceptability Synthesis Report. London: UKERC.
- 8. Demski, C., Evensen, D., Pidgeon, N.F., & Spence, A. (2017). Public prioritisation of energy affordability in the UK. *Energy Policy*, 110, 404-409.
- 9. Bessette, D.L. & Arvai, J.L. (2018). Engaging attribute tradeoffs in clean energy portfolio development. *Energy Policy*, 115, 221-229.
- Evensen, D., Demski, C., Becker, S., & Pidgeon., N.F. (2018). The relationship between justice and acceptance of energy transition costs in the UK. Applied Energy, 222, 451-459.

- 11. Becker, S., Demski., C., Evensen, D., Pidgeon, N. (2018).
 Public views on responsibility for financing UK energy
 system change: Towards less profits and more
 transparency. Cardiff University working paper.
 Cardiff, UK.
- 12. Grubb, M. & Newbery, D. (2018). UK Electricity Market Reform and the Energy Transition: Emerging Lessons. Energy Policy Research Group Working Paper. Retrieved on 09.08.18 from https://www.eprg.group.cam.ac.uk/wp-content/uploads/2018/06/1817-Text.pdf
- 13. Bickerstaff, K., Simmons, P., & Pidgeon, N.F. (2008). Constructing responsibilities for risk: Negotiating citizen-state relationships. *Environment and Planning* A, 40, 1312-1330.
- 14. Ofgem (2015). Retrieved from https://www.ofgem.gov. uk/publications-and-updates/infographic-bills-prices-and-profits in June 2016.
- 15. Kotchen, M.J., Turk, Z.M., & Leiserowitz, A.A. (2017). Public willingness to pay for a US carbon tax and preferences for spending the revenue. *Environmental Research Letters*, 12, 094012.
- 16. Jenkins, K., McCauley, D., Heffron, R., Stephan, H., & Rehner, R. (2016). Energy justice: A conceptual review. Energy Research & Social Science, 11, 174-182.
- 17. Demski, C., Thomas, G., Becker, S., Evensen, D., & Pidgeon, N.F. (2019). Acceptance of energy transitions and policies: Public conceptualisations of energy as a need and basic right in the United Kingdom. *Energy Research* & Social Science, 48, 33-45.
- 18. Walker, G., Simcock, N., & Day, R. (2016). Necessary energy uses and a minimum standard of living in the United Kingdom: Energy justice or escalating expectations? *Energy Research & Social Science*, 18, 129-138.
- 19. Barrett, J., Owen, A., & Taylor, P. (2018). Funding a low carbon energy system: A fairer approach? London: UKERC. Retrieved from: http://www.ukerc.ac.uk/publications/funding-a-low-carbon-energy-system.html

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