

Energy Systems Catapult consultation response

Consultation on the Fuel Poverty Strategy for England

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About Energy Systems Catapult

Energy Systems Catapult was set up to accelerate the transformation of the UK's energy system and ensure UK businesses and consumers capture the opportunities of clean growth. The Catapult is an independent, not-for-profit centre of excellence that bridges the gap between industry, government, academia and research. We take a whole systems view of the energy sector, helping us to identify and address innovation priorities and market barriers, in order to decarbonise the energy system at the lowest cost.

Key points

- The energy system is undergoing fundamental change, driven by the need to decarbonise, along with the advent of new more decentralised and digitalised technologies. Within this context the Government's Fuel Poverty Strategy must ensure that:
 - fuel poor and vulnerable energy consumers are not adversely impacted by the transition to a low carbon future within a smarter, more flexible energy system
 - new technologies and innovations are harnessed to meet the needs of fuel poor and vulnerable groups
 - energy policies and market arrangements support the delivery a transition that is 'fair and perceived to be fair'¹ as the UK moves towards a net zero future.
- The ESC believes there is **substantial scope to harness new technologies and service propositions to deliver better outcomes to consumers, including fuel poor and vulnerable groups** with specific needs. New technology can enable better targeting of energy services to specific consumer needs, better integration of energy services with the specifics of building fabric, improved control for consumers (of cost and service outcomes) and much deeper understanding of consumer needs. All of these are highly relevant to delivering improved access to high quality energy services for fuel poor and vulnerable customers. The ESC is working with the sector to design innovation that better supports those in fuel poverty through a programme of work, Fair Futures². Projects within this programme range from developing new propositions, improving customer handling procedures and meeting new policy obligations and changes.
- Fundamental change in the energy system and energy markets is driving change in fuel poverty risks (see section on 'Addressing changing fuel poverty risks' below)
- The Government should consider an additional guiding principle for the fuel poverty strategy, that action should be informed by deep and up to date understanding of vulnerable consumers' needs and experiences, including evidence built through innovative experimental approaches, co-design and testing.

¹ Net Zero The UK's contribution to stopping global warming, Committee on Climate Change, May 2019

² More information can be found <https://es.catapult.org.uk/impact/specialisms/fair-futures/>

- With this in mind, there is a **strong case for creating a large scale ‘Living Lab’ to provide a safe, test and demonstration facility** for new energy products, service propositions and new regulatory and market arrangements. This would enable fuel poverty strategy development to be informed by practical trials and experimentation with consumers in real homes, reducing the risk of unanticipated consequences.

Addressing changing fuel poverty risks

Fuel poverty and climate change have different causes so they need different solutions. In solving one, we should try to avoid making the other worse. For instance, connecting fuel poor homes to the gas grid can reduce energy bills, but may worsen climate change by locking them into high carbon heating. We should seek synergies where possible. For instance, insulating homes can reduce what they cost to run as well as reduce carbon emissions.

In recent decades, the retail energy market has offered consumers the same item bought in the same way (paying for kilowatt hours through energy bills). This means that factors affecting fuel poverty risk have stayed largely stable over that time. But the factors that shape fuel poverty risk and vulnerability will change in the future as decarbonisation and digitalisation change how people can use and purchase energy. Some examples of current and potential future factors that make people vulnerable to fuel poverty are shown below.

Risk factor	Examples of current risks	Examples of potential future risks
Grid access	Those off the gas grid in rural areas and tower blocks at higher risk	Those without access to low carbon electricity grid or new low carbon energy networks
Fuel	Heating via electricity is more expensive than gas	High carbon emitting fuels for heating may become more expensive
Building	Larger poorly insulated homes cost more to heat	Smaller homes without off-street parking may pay more to charge their electric vehicle
Finance	Customers are penalised for staying with the same supplier for longer	Customers may be penalised for not signing up to a long term contracts that repay the cost of low carbon energy investments.
Occupant	People at home all day need more energy to get comfortable	People out all day may need to use energy at peak times when prices are higher
Devices	People without smart meters will have access to less information on their energy use	Tenants may not be able to install smart devices without their landlord’s permission

In a future data-driven energy system, it is likely that new business models will offer consumers more personalised home energy services through new technologies. There is great opportunity to provide consumers with services that fuel poor households would find of value. For instance, buying heating as a service has the potential to give consumers better control of the temperatures in their home and to give businesses information about how much it costs to heat specific homes

to warm and healthy temperatures³. Alternatively fuel poor households may be able to more accurately schedule and control their energy consumption. However, there will be challenges in making these new services and products available to all households, including those that are at risk of fuel poverty. For instance, support needs to be available to ensure that households are not made more vulnerable if, for instance, they cannot adapt their behaviour or do not actively use digital services.

Responses to consultation questions

We have provided responses to questions where we have evidence and direct experience that is relevant.

Q6. Do you have views or evidence on our proposal to add more detail on, and clarify, the meaning of the vulnerability principle and, in particular, on our proposed changes to the meaning of the principle?

We support the proposal to refine the vulnerability principle to focus more clearly on those households and individuals at highest risk of harmful impacts from living in a cold home. We support this approach to clarifying the vulnerability principle because it takes account of households that cannot easily benefit from a smart energy market. This should involve ensuring that vulnerable people have access to appropriate energy services as the tariffs and technologies in the market become more diverse. People should not be excluded because of how their personal circumstances (e.g. not using digital services) interact with market conditions (e.g. the most appropriate and affordable services are only available through extensive active digital engagement).

Refining the vulnerability principle to look beyond the home should ensure that the Fuel Poverty Strategy is informed by a more future proof set of principles.

Q7. Do you agree with our proposal to create a fourth principle on aligning fuel poverty strategy with current and future Government priorities? Do you have views or evidence that may be useful in creating this principle?

ESC supports the proposal to create a fourth 'sustainability' principle to align the fuel poverty strategy with other policies and priorities (e.g. the Clean Growth Strategy). Clearly, all energy-related policies must now be future proofed to be consistent with meeting legally binding targets for net zero greenhouse gas emissions by 2050. Similarly we support the emphasis in the consultation document on ensuring that action to address fuel poverty supports government objectives relating to air quality or improved health outcomes.

ESC work suggests that there is significant scope for synergies in addressing health and fuel poverty needs. A large portion of households in fuel poverty suffer from chronic illnesses or disabilities. Many conditions are made worse by living in a cold home. But the energy sector struggles to identify the households that need support and the healthcare sector has very few

³ More information about the potential value of heating as a service for consumers can be found here: <https://es.catapult.org.uk/wp-content/uploads/2018/10/FINAL-How-can-people-get-the-heat-they-want-at-home-without-the-carbon.pdf> and <https://es.catapult.org.uk/wp-content/uploads/2019/08/18181-Smart-Systems-Heat-Heat-Plans-%E2%80%93-made-to-measure-165-x-265-FN-1.pdf>

measures that can provide solutions to tackle the problem. New services could help address both the health and energy needs of households that are vulnerable in this way.

The ESC is planning to design and test a new service where energy consumers identified by health professionals are delivered a healthy level of warmth in their home over the winter period. This will use co-design with consumers and healthcare professionals.

Q8. Would you suggest any other guiding strategic principles? Do you have any other views or evidence on the guiding principles?

A potential additional (5th) guiding principle for the fuel poverty strategy could be that action should be informed by deep and up to date understanding of vulnerable consumers' needs and experiences. This should include evidence built through innovative experimental approaches, co-design and testing.

Addressing decarbonisation and fuel poverty is sometimes going to require difficult decisions and trade-offs in policy and for individual householders. Poor early experiences of low carbon heating systems for households that are already vulnerable could put decarbonisation efforts at risk at the outset. This can be addressed by building a deeper understanding of how actions affect consumer experiences, including vulnerable households.

We therefore recommend that the fuel poverty strategy includes methods to design and test policies and services with consumers. To support this approach we are actively recruiting households at risk of fuel poverty to our Living Lab. This is a low risk way to give businesses, innovators and BEIS confidence to pursue innovation that could provide benefits for consumers. Within the Living Lab, ESC has worked with innovators to design and test Heat as a Service, as a new way for consumers to buy energy and accelerate the low carbon transition. We have found that it is possible to co-design and test a service that consumers love in a safe but innovative way. More information is [available](#). This environment revealed the needs and behaviour of different consumer groups in a completely new way⁴ and showed us how products and services could be designed to give better experiences from their heating that could be provided by low carbon sources⁵.

As part of the Future Energy Retail Market Review, ESC supported OFGEM and BEIS to involve consumers in co-creation at the early stages of policy development. By taking a similar approach with fuel poor households, we could learn how vulnerable consumers would react to different policies and service offerings, in the process deepening knowledge of how best to achieve the desired policy outcomes. Taking this approach has enabled policy making with consumers in mind in these two above examples. This approach could equally support policy making on fuel poverty.

⁴ More information on the six types of heat consumer can be found [here](#)

⁵ <https://es.catapult.org.uk/wp-content/uploads/2019/08/18181-Smart-Systems-Heat-The-delight-of-better-control-165-x-265-FN-1.pdf>

Q21. Keeping in mind the strategy's guiding principles, what policies might be included in a policy plan to create a fairer energy market for households in fuel poverty?

The ESC's work suggests that policies to promote the development and use of Local Area Energy Plans could enable improved local co-ordination and action to address fuel poverty – as well as improving understanding of locally tailored strategies for decarbonisation.

Local Area Energy Plans can help inform local strategies and investment to tackle fuel poverty by using better data to target and identify households in fuel poverty. Smart energy plans for local areas in the Smart Systems and Heating programme developed by the ESC included targeting tailored retrofit programmes and targeting Energy as a Service business models to support low carbon heating at fuel poor households⁶. Existing mapping of fuel poverty at a local level can be used to plan where investment in building renovation and energy infrastructure should be targeted and in what order. Local authorities would be key to understanding the local context and coordinating the necessary organisations in implementing policy in this way.

Secondly, as data and digitalisation change the way that consumers use and buy energy in the future there is a risk that digitally excluded households cannot benefit from the best offers (services and price) in the energy market. The poverty premium in the UK⁷ already affects the cost for low income households to access essential consumer markets. A fairer energy market would be supported by policies which consider how digital exclusion in the future energy market may increase the barriers to these households accessing affordable energy services.

One of the lessons from digitalisation in other sectors is that capability to design high quality experiences grows with feedback from failing fast. Our work on field trials, <https://es.catapult.org.uk/wp-content/uploads/2019/06/SSH2-Field-Trial-Learnings-InsightReport.pdf>, has shown how data can enable industry to design high-quality energy services that support consumers with what they want and need from energy. It is therefore key that the toolbox of regulatory intervention includes methods that have the capability to test and learn how to design services that meet the needs of all consumers, including those vulnerable to fuel poverty.

As mentioned elsewhere in this response the ESC sees value in the creation of a large scale 'Living Lab' to provide a safe, test and demonstration facility for new energy products, service propositions and new regulatory and market arrangements. This would be of significant commercial value to UK innovators, as well as providing an ability to trial regulatory arrangements, service propositions and products targeted at vulnerable households. In this way the ESC was commissioned in 2018 by Citizens Advice to design, test and learn consumer protection for Heat as a Service offer to consumers⁸.

⁶ <https://es.catapult.org.uk/wp-content/uploads/2019/06/SSH-Phase-2-Local-contexts.pdf>

⁷ The poverty premium is defined as "the extra cost that households on low incomes incur when purchasing the same goods and services as households on higher incomes"
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/782513/natcen_report.pdf

⁸ The full reports can be found here <https://es.catapult.org.uk/news/smarter-protections-using-fieldtrials-to-explore-how-people-understand-energy-as-a-service/>

22. What commitments, whether new or retained from the 2015 strategy, might supplement the policy plan in the updated strategy to create a fairer energy market for households in fuel poverty?

By ensuring that the fuel poor are able to benefit from a fair and functioning smart energy market, there is also great benefit to all consumers as they may also benefit from better, more inclusive services. By designing for fuel poor consumers, products and policies would also be opened up to more consumers with a wider range of needs and vulnerabilities. For instance, services that are designed to support those with limited mobility could also be of benefit to people in rural areas or those without limited access to public transport. Also services designed for those that are hard of hearing could also benefit those with English as a second language or those that want more time to read and respond to information.

We recommend similar methods are employed as mentioned earlier in our response.