Powering up participation
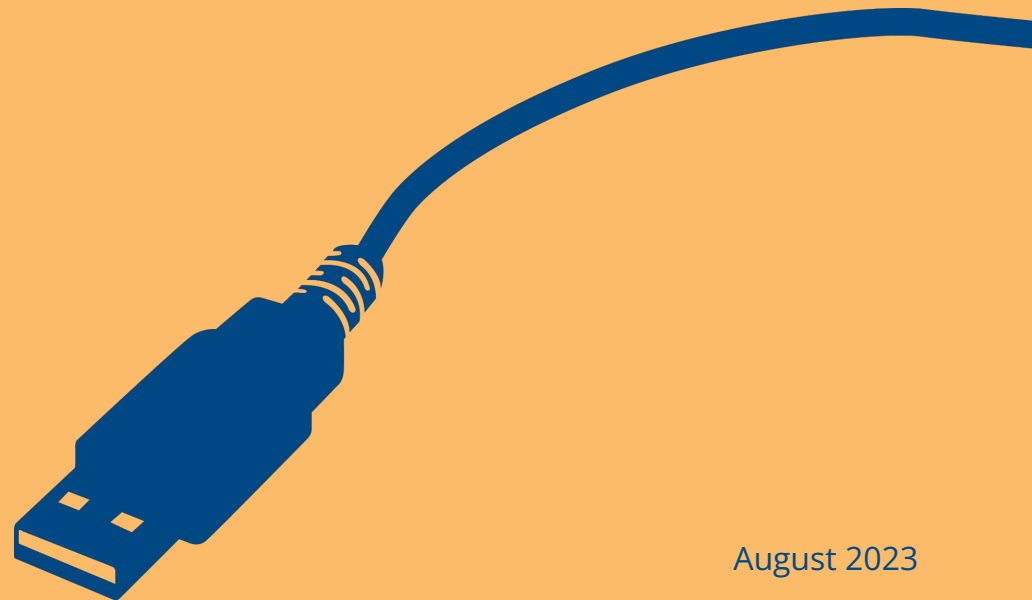
A guide to making smart energy technology more inclusive

citizens
advice

Using this guide

In **A flexible future**, we call for the government to set out a clear plan for how it will help people with barriers to participating in energy flexibility. We propose a range of actions to achieve better **information**, appropriate **regulation** and inclusive **innovation.**

This guide expands on our call for more inclusive innovation. The smart energy technology sector has a key role to play here and we expect this resource to help the sector to put inclusivity at the heart of designing technology and the consumer journey as a whole.

In this guide, we share:

1   learnings from usability testing of a smart thermostat

2   a new interactive tool to support consideration of the compounding barriers that people may face along their consumer journey of interacting with smart energy technology

> *"I feel excluded, kind of alone and isolated when it comes to new technology, so I feel like I'm missing the boat"*
>
> Robert*, 58, London. Robert is neurodivergent and is not confident using technology.

Energy flexibility is about shifting energy usage to "off-peak" times of day when there is more renewable energy on the grid. Tariffs, products and services are increasingly available to domestic households, financially incentivising people to shift their electricity usage.

Smart energy technology refers to energy-related products that can connect to a smart meter and the internet so they can do more things. They can respond automatically to price and/or other signals by modulating or shifting their electricity consumption. They can be controlled from a central hub - often a smartphone app or device.

Inclusive design is a design process in which a product or service is designed to be usable for as many people as possible. It involves considering the needs of a diverse range of people.

Our usability testing focused on product design. It highlighted the value of including people facing barriers in such exercises.

But the barriers to participating in energy flexibility go beyond the design of the smart energy technology. The whole consumer journey is crucial, from building understanding, trust and confidence to setting up the technology.

Our interactive tool zooms out to consider each stage of the consumer journey in interacting with smart energy technology.

Learnings from usability testing of a smart thermostat

We commissioned in-home usability testing of a smart thermostat with 10 people who face barriers to using technology. Participants included disabled people and people with additional literacy needs.

The thermostats were in 'dummy' mode so they weren't connected to a real account. Participants were asked to unbox the product, follow the instructions, navigate features using the hardware and/or app on a tablet. At each stage, participants shared their views on what worked well and gave practical suggestions about what could be better about using the product.

A **smart thermostat** is a type of smart energy technology. By connecting to a smart meter and the internet, it can respond automatically to price signals and adjust temperature settings to optimise convenience, efficiency and warmth.

Instructions	Physical hardware features	Hardware display and app interface
✓ Step-by-step instructions built into the device itself	✓ Large displays	✓ Colour change to illustrate temperature change
✓ Hard copy available in the box	✓ Different models with or without certain features (e.g. haptic knobs) to suit needs	✓ Simple navigation and familiar functions
✓ Signpost to a 'how-to' video and offer support via several channels	✓ A range of options for moving through functions, with options that don't require repetitive tapping	✓ Personalisation of things like font sizes, voice commands and language
✓ Different formats and languages	✗ Goes into standby too quickly	✗ Too much jargon
✗ Font size very small		
✗ Too wordy, no pictures		

"For me it has to be visual"

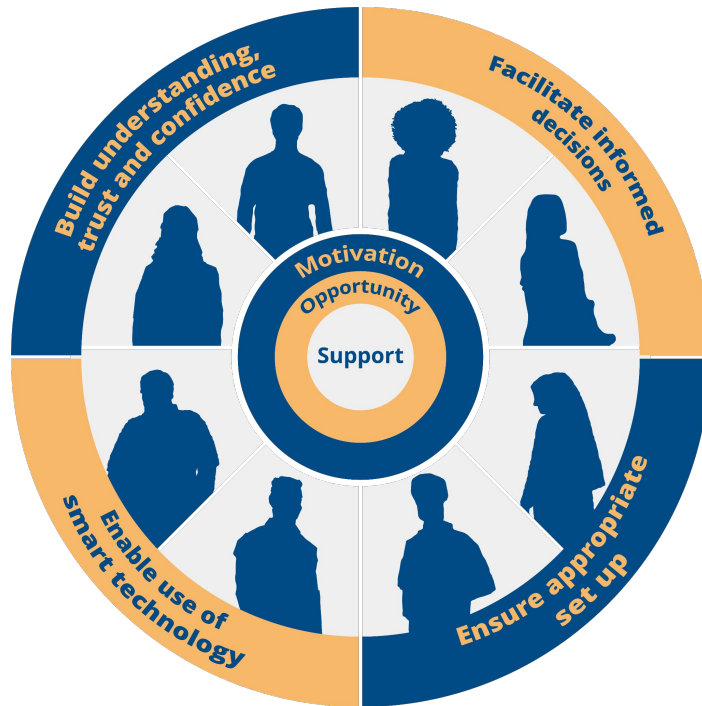*"You can feel it click so you know"*

"It's something I could play around with and work out how to do what I want"

3

A new interactive tool for inclusive design

How to navigate the tool

Select one of the silhouettes to explore a case study

Select a segment of the wheel to consider the barriers at each stage and interventions that could help

Select 'Return to barriers' to explore a different stage

Select 'Return to case studies' to explore a different case study

We worked with Neck of the Woods Films to produce the tool.

The inclusive smart energy technology (ISET) tool draws on the case studies of people we heard from in our research. It can be used to demonstrate and consider the variety of compounding barriers that people may face at each stage of interacting with smart energy technology.

At Citizens Advice, we believe that social constructions create barriers to accessibility and exclude people. Adapted from the COM-B model of behaviour change, we have grouped the barriers under 3 different types of exclusion: support, opportunity and motivation.[1]

Next steps

Widening access to smart energy technology is crucial for increasing participation in energy flexibility.

We want to see companies in the smart energy technology sector conducting inclusive usability testing and sharing results and good practice with the sector. We welcome feedback and further discussion at netzerohomespolicyteam@citizensadvice.org.uk

Research approach

Collaborate Research carried out this research between September 2022 - February 2023

1 **Literature review**

We reviewed available evidence on access and inclusion of smart home technology for various consumer groups.

2 **Stakeholder interviews**

We interviewed 4 companies from the smart energy industry and 6 stakeholders from policy and advocacy organisations.

4 **Depth interviews**

We interviewed 6 people in their homes, as an alternative for those facing barriers to workshop environments.

3 **Deliberative workshops**

We held 4 in-person workshops across England and Wales with 24 people. We shared information about smart energy technology, and the role it can play in energy flexibility, and explored their awareness, experience and reflections.

5 **Usability-focused in-home interviews**

We discussed participants' engagement with technology already in their homes and observed their reflections as they interacted with a dummy smart thermostat.

We focused on the views of disabled people, people with additional language needs and people who are digitally excluded.

We used a number of approaches to help people overcome any barriers to participating in the research by providing adaptations and support identified through the recruitment process.

Click here to access the research report by Collaborate Research.

Citizens Advice helps people find a way forward.

We provide free, confidential and independent advice to help people overcome their problems. We're a voice for our clients and consumers on the issues that matter to them.

We value diversity, champion equality, and challenge discrimination and harassment.

We're here for everyone.

citizensadvice.org.uk

References

1. See, for example, Social Change (2019) A guide on The COM-B Model of Behaviour and Scope's Social model of disability [accessed August 2023]. For this report, we have adapted the COM-B model of behaviour change to focus on exclusion created by social constructions, similar to the social model of disability.

* Names have been changed to protect anonymity