THE MCS FOUNDATION

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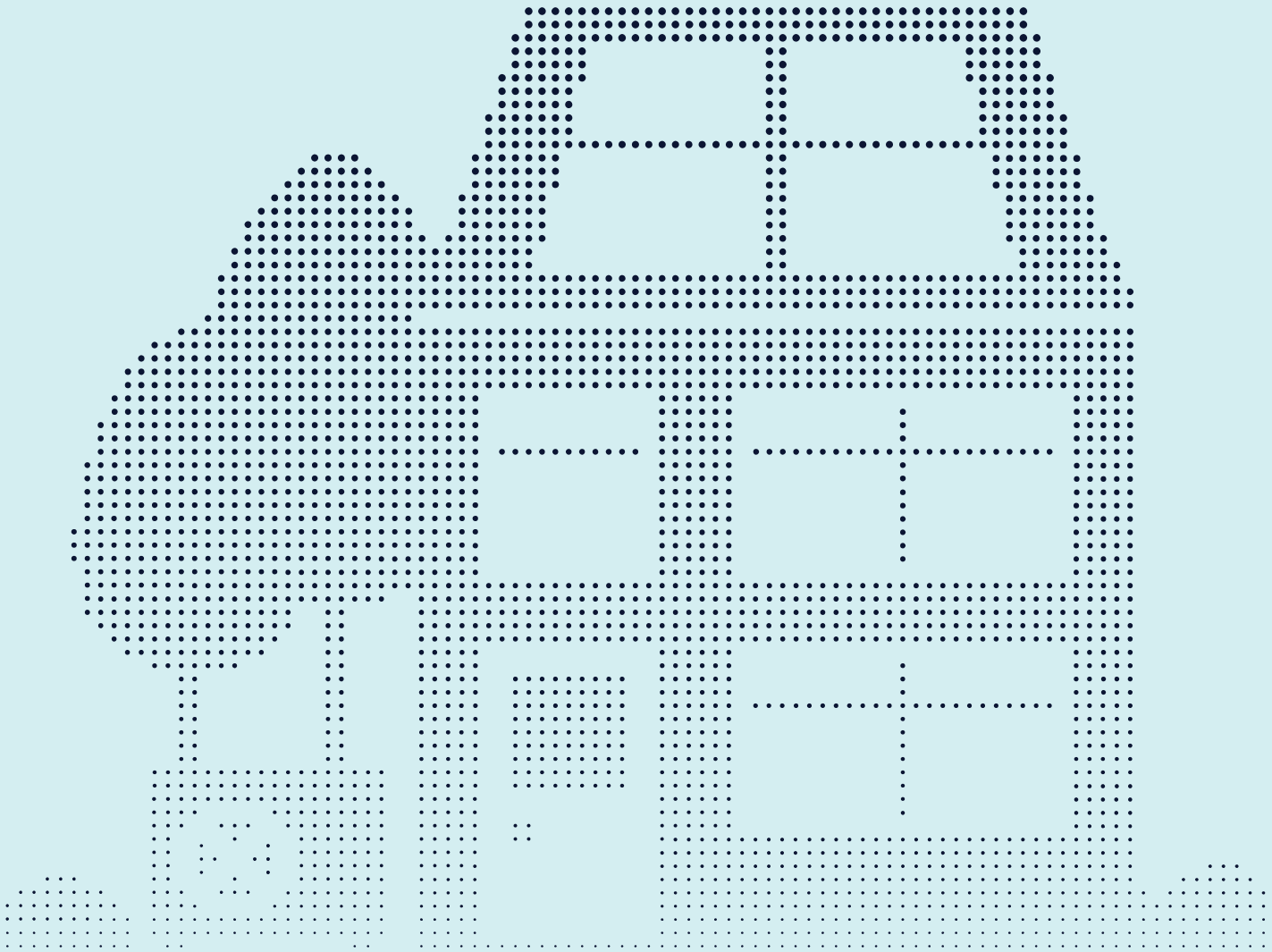
UNLOCKING FLEXIBILITY: HOW TO ENGAGE HOUSEHOLDS IN DEMAND SIDE RESPONSE



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Unlocking flexibility: how to engage households in demand side response

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About The MCS Foundation

Our vision is to make every UK home carbon-free.

The MCS Foundation helps drive positive change to decarbonise homes heat and energy through our work programmes, grants and advocacy.

We support engagement programmes, fund research and facilitate innovative solutions to drive widespread adoption of renewables to help achieve a Net Zero future. In addition, the Foundation oversees the Microgeneration Certification Scheme (MCS) which defines, maintains and improves quality standards for renewable energy at buildings scale.

Designed by: Jimmy Davies, JimmyDavies.com

Contents

Glossary

Agile time-of-use tariff
A smart energy tariff that changes its electricity prices every half-hour, reflecting the fluctuating wholesale market prices.

Community energy group
Organisations that enable local communities to collectively own, control, and benefit from energy projects, primarily focusing on renewable energy generation and energy efficiency.

Demand side response (DSR)
When households, commercial buildings, or industrial businesses adjust their electricity consumption—either by increasing, decreasing, or shifting usage—based on price signals.

Demand side response (DSR) aggregator
An organisation that facilitates DSR by aggregating demand reduction from multiple households and participating in energy markets on their behalf. This includes both licensed energy suppliers and independent third-party aggregators.

Demand Flexibility Service (DFS)
A national explicit DSR programme launched by the energy system operator to reduce electricity demand during peak periods. Households and businesses that opted in were rewarded for reducing their electricity use during specific, short time windows—typically one to two hours—compared to their usual consumption.

Direct load control
An approach where an external party—such as an energy supplier, aggregator, or network operator—is given the ability to remotely control specific electrical appliances with the household's consent.

Distribution Network Operator (DNO)
A company that owns and operates the electricity distribution network, delivering electricity from the transmission network to homes and businesses.

Dual rate time-of-use tariff
An electricity tariff that offers two different rates for electricity consumption: a cheaper "off-peak" rate and a more expensive "peak" rate (e.g. Economy 7).

Energy Company Obligation (ECO) scheme
A UK government initiative aimed at improving energy efficiency in homes, particularly those of low-income households, to reduce fuel poverty and carbon emissions.

Explicit demand side response
When households respond to specific requests to reduce, increase, or shift electricity use—usually by signing up to DSR programmes like the Demand Flexibility Service. Events typically last 1–2 hours and are opt-in, with households rewarded based on how much they adjust their usage during that window.

Flexibility capital
People's ability to participate in DSR, varying across the population and shaped by both technological and social factors, including life stage, caring responsibilities, culture, religion, and wealth.

Implicit demand side response
When households sign up to a time-of-use tariff and are continuously exposed to varying electricity prices, including higher electricity prices at peak times and cheaper prices during off-peak periods.

Kilowatt-hour (kWh) based payments
Where the charge for energy, such as electricity and gas, is based on the amount of energy you consume.

Low-carbon technologies (LCTs)
Renewable and electrification technologies. Domestic examples include solar panels, heat pumps, solar thermal (hot water heating), electric vehicles with chargers, home batteries, and thermal storage batteries.

Market-Wide Half-Hourly Settlement (MHHS)
A major reform in the British electricity market that requires all electricity consumers, including homes and small businesses, to have their electricity consumption settled every half hour.

Microgeneration technologies
Small-scale renewable energy systems that generate electricity or heat for on-site use.

National Energy System Operator (NESO)
Independent public body responsible for managing and planning the UK's electricity and gas networks. Previously known as the National Grid Energy System Operator (ESO).

Ofgem
The Office of Gas and Electricity Markets, the energy regulator for Great Britain.

Retail market
The part of the energy market where consumers buy electricity and gas from licensed energy suppliers. Suppliers compete to offer tariffs, customer service, and additional services to households and businesses.

Smart Energy GB
National consumer engagement body supporting the smart meter rollout.

Smart meter
A digital energy meter that automatically sends gas and electricity consumption data to your energy supplier, eliminating the need for manual meter readings.

Third-party aggregator
A company that aggregates flexibility from electricity users—households, businesses and industrial and commercial—and participates in energy markets on their behalf. They do not sell electricity but instead offer services and tools that enable participation in DSR.

Time-of-use (ToU) tariff
An electricity tariff where prices vary at different times of day. There are typically at least two price periods—such as peak and off-peak rates—with some tariffs offering more complex or dynamic pricing structures. These tariffs are designed to reflect the wholesale cost of electricity, encouraging households to shift use away from expensive peak hours towards cheaper, off-peak periods.

Turn-down event
A type of explicit DSR event where households are asked to reduce their electricity use during a specific time period. Participation is voluntary, and households are rewarded based on how much they reduce compared to their typical usage.

Turn-up event
A type of explicit DSR event where households are encouraged to increase electricity use during a specific time—often to absorb surplus renewable generation. Incentives can include cheaper or even free electricity during the event window.

Foreword

By Garry Felgate, Group CEO, The MCS Foundation

At The MCS Foundation, our vision is a carbon free future for all UK homes. To achieve that future in a just and efficient way, we'll not only have to roll out renewable technology in our homes such as heat pumps, solar PV, and battery storage: we will also require shifts in how and when British households use electricity.

Energy Minister Michael Shanks has said the Government's Clean Flexibility Roadmap would help to "protect working people's pockets and ensure they are the first to benefit from our clean power mission." People must be at the heart of the clean energy transition: and how people interact with and use energy in their home is the focus of this report.

Demand side response (DSR) – that is, enabling and encouraging households to shift when they use electricity in order to manage peak usage and demand on the grid – could enable households to save as much as £375 a year on their energy bills by 2040. Not only that, but DSR can reduce the need for costly new infrastructure, and the use of gas-fired power stations. DSR offers a triple win.

Yet, as our report shows, low levels of public awareness, and in some cases low levels of trust, mean there is a risk of households not engaging in DSR.

This report explores current public attitudes towards DSR, and what would persuade them to engage in energy flexibility. The results pose critical, and constructive, questions for energy companies, DNOs, Ofgem, Government, and anyone trying to engage consumers with DSR.

Encouragingly, while many people hadn't heard of "demand side response" or had only a limited awareness, many survey respondents expressed interest in learning more about DSR: pointing to real potential, if the right engagement strategies are put in place. But if, as our findings show, 30% of people don't know which energy tariff they are on, how can we expect them to understand and engage with DSR by, for example, changing their tariff to a time-of-use one?

To help address these challenges, the report sets out five core principles for engagement:

- **Building trust,** with consumer engagement grounded in clear consumer protections and good customer service.
- **Equity and inclusion,** to make sure DSR is accessible to all—not just the most digitally savvy or financially secure.
- **Empowering engagement strategies.** Rather than one-size-fits-all approaches, households need tailored engagement delivered through trusted messengers.
- Clear, benefit-focused and consistent **messaging and communication**.
- **User-centred design**, so that DSR products and services are simple, intuitive, and co-designed with users.

Delivering net zero, lower bills, and energy flexibility must be founded on these principles if we are to unlock the triple win that DSR offers.

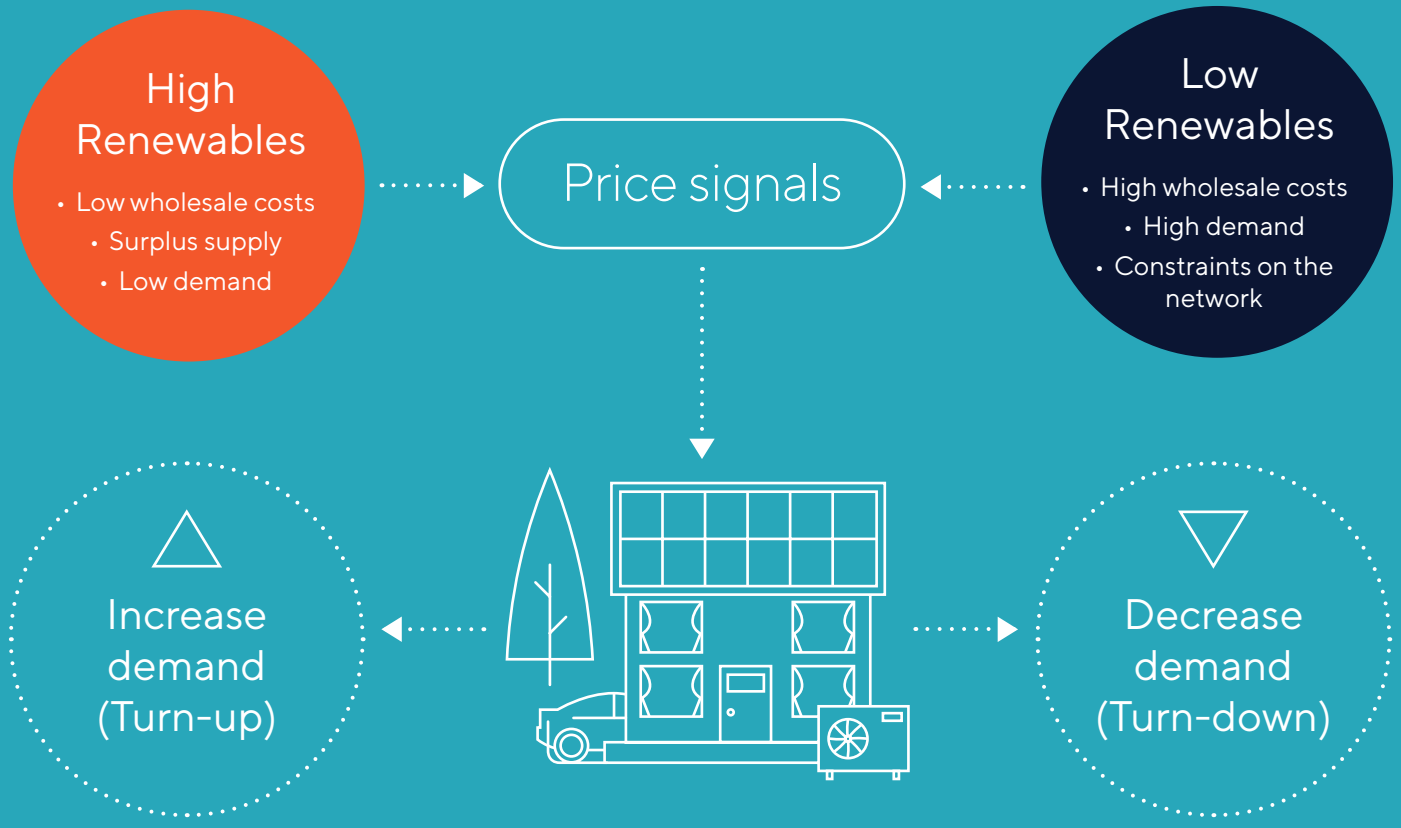
Executive Summary

Flexibility from domestic demand side response (DSR) will play an increasingly important role in enabling a low-carbon energy system—supporting both the growth of variable renewables and the electrification of heat and transport.

The UK government's flexibility roadmap recognises this, outlining plans to integrate consumer-led flexibility into the electricity system—including a dedicated workstream on domestic engagement.

This report is intended to support that effort—providing timely insights and recommendations for those involved in shaping the future of household flexibility in the UK.

It draws on results from a UK representative survey and expert interviews to propose a practical framework for engaging households in DSR.



Key results:

1. There is currently low awareness, understanding and participation with DSR amongst the public

Time-of-use (ToU) tariffs (implicit DSR):

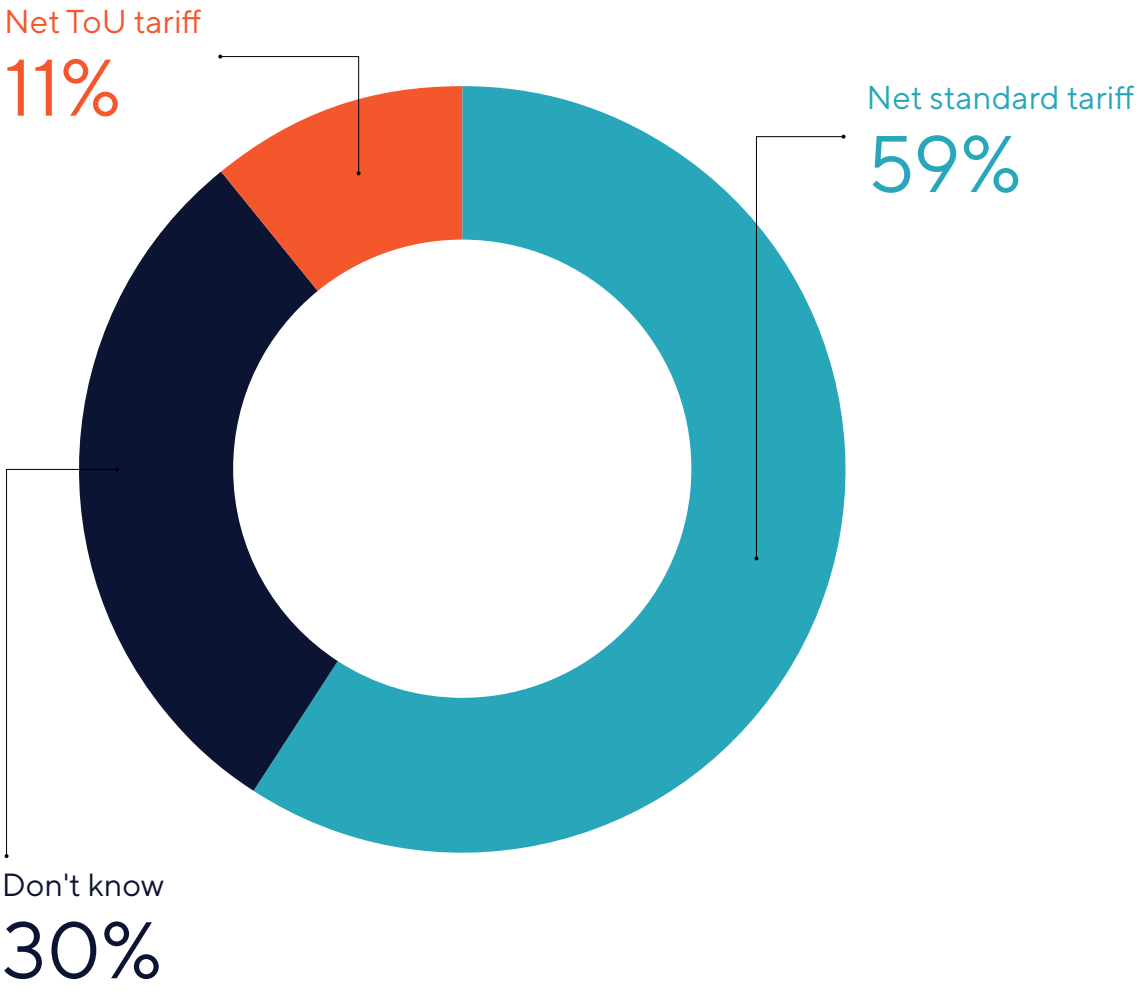
- Nearly a third (30%) of respondents did not know what tariff they were on.
- Only 11% of UK adults are currently on a ToU tariff, compared to nearly three-fifths (59%) who remain on standard fixed or variable tariffs.
- 41% said they were unlikely or very unlikely to make the switch to a ToU tariff.

DSR programmes (explicit DSR):

- 78% of survey respondents said they had never heard of DSR, and only 4% reported knowing exactly what it is.
- Almost half of respondents (48%) indicated they were very or fairly likely to participate in a future explicit DSR programme, with 18% saying they were very likely.

Figure 1 *- "What type of electricity tariff do you currently have?" (n=2,095)*

Tariff types among UK adults



2. Barriers to DSR range from social and technological factors, with the ability to participate varying within the public

- The main reasons selected by the survey respondents who would be unlikely to switch to a ToU tariff were: "I would struggle to shift my electricity usage away from peak times" (36%) and "I'm happy with my current tariff/provider" (34%).
- The most cited factor which would discourage the survey respondents from participating in DSR programmes was "I expect too little financial benefit" (29%).

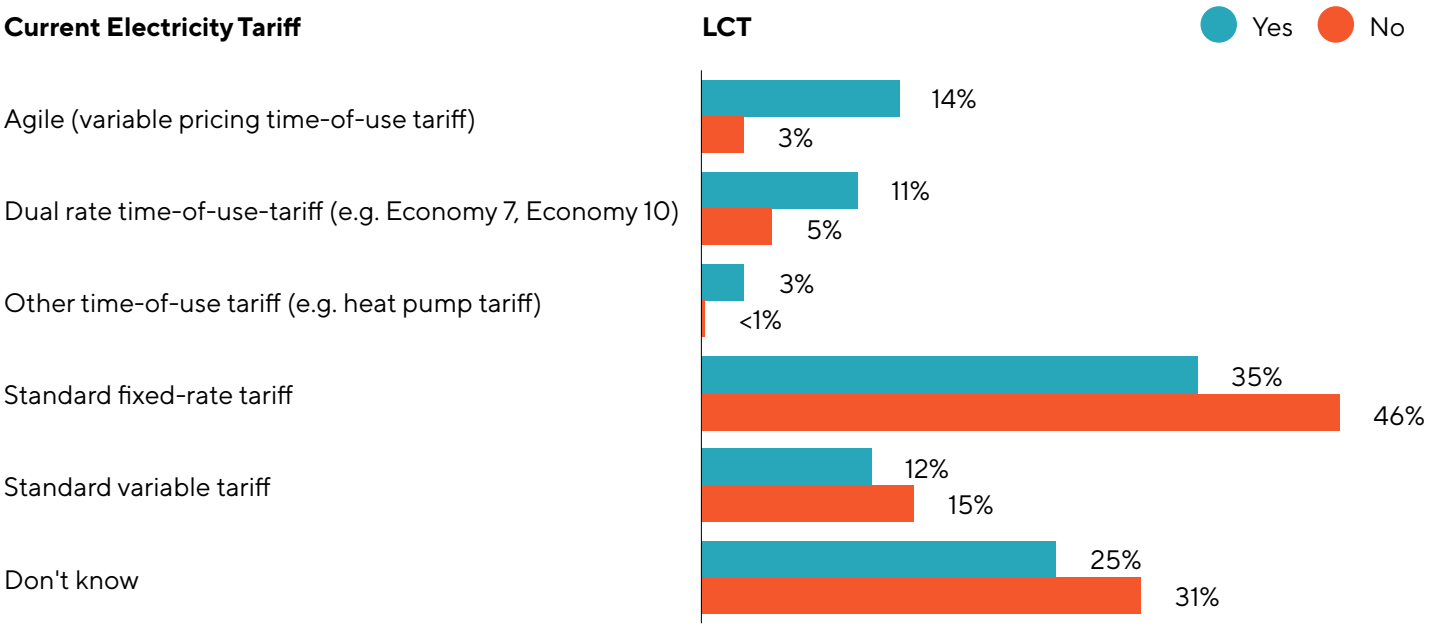
The interviewees also highlighted other challenges such as lack of interest and competing priorities, the complexity of tariffs and DSR programmes, and the limited success of the smart meter rollout. Varying flexibility capital was also noted in the interviews; for example, electricity routines can be tightly fixed around daily schedules, making them difficult to shift—particularly for those with children or other caring responsibilities.

3. There is a risk of exacerbating inequalities and excluding certain groups of people from participation in DSR, such as those without smart technologies

The survey results re-emphasised the link between low-carbon technology (LCT) ownership and awareness of DSR, interest in participating in a DSR programme, and being on a ToU tariff already.

However, though a key enabler of domestic DSR, 33% of respondents answered that they did not have any smart technologies in their home, including LCTs and smart appliances. Furthermore, ownership of LCTs and smart technologies were impacted by demographics; for example, those living in a studio/flat/apartment were significantly more likely to answer that they had "none of the above" smart technologies (43% compared to the overall average of 33%).

Figure 2 - Current electricity tariff for those with LCTs (EV, heat pump, thermal storage battery, home battery, solar thermal, solar panels) (n=316) compared to those without LCTs (n=1,779).



4. Automation will be key to unlocking domestic DSR, though there are a range of social, technical and structural challenges that must be addressed

27% of survey respondents answered that "simplicity and ease of participation (e.g. automatic adjustments, minimal effort)" would encourage them to continue participating in a DSR programme. However, the following challenges with automation were noted in the expert interviews: trust and data privacy, control and perceived loss of agency, complexity and user confidence, and technical, financial and accessibility barriers.

How can we unlock domestic demand side response moving forward?

Based on the findings of this study, a more inclusive, effective and meaningful DSR engagement strategy should be built around five key pillars:

1.

TRUST AS THE FOUNDATION

Engagement must be grounded in clear consumer protections and good customer service. Trust is fragile and hard-won—people need to feel confident that they're being treated fairly and have recourse if things go wrong.

2.

EQUITY AND INCLUSION

DSR must be accessible to all—not just the most digitally savvy or financially secure. That means tailored engagement, targeted support for low-income households to access enabling technologies, and protections for those unable to participate.

3.

EMPOWERING ENGAGEMENT STRATEGIES

One-size-fits-all approaches don't work. Households need tailored, empowering engagement—delivered through trusted messengers, timely advice, and face-to-face support—especially at key decision points like LCT installation.

4.

MESSAGING AND COMMUNICATION

Communication should be clear, benefit-focused, and consistent across all actors. Messaging must reflect people's diverse values and priorities, avoiding jargon and making the benefits of DSR feel tangible and personally relevant.

5.

USER-CENTRED DESIGN

DSR products and services must be simple, intuitive, and co-designed with users. Incentives should be easy to understand, feedback must be timely and visible, and a range of DSR options should be available to suit different household needs.

Under these key pillars, we make the following recommendations for key stakeholders:

Suppliers and third-party aggregators

- Build trust with households through clear, timely communication and high-quality customer service – including transparency around price changes, data use, and technical issues, as well as fast resolution of problems and proactive updates.
- Offer a risk-free trial period for ToU tariffs, enabling households to explore potential savings without financial disadvantage.
- Co-design DSR products and services, directly involving households during development.
- Diversify both implicit and explicit DSR services and products to reflect different living situations, preferences, and capabilities—not a single standardised model.
- Enable quick feedback loops—for example, app notifications or emails to communicate savings soon after a DSR event so the connection between action and outcome is clear for households.

Ofgem

- Ensure that robust consumer protections are in place, including a clear redress process, so people know where to go if something goes wrong.
- Mandate electricity supplier obligations to reach underserved groups, especially those in fuel poverty or digitally excluded, as part of a regulatory framework for just and inclusive DSR.
- Update price comparison tools to include ToU tariffs and allow easy side-by-side comparisons. This could be achieved through updating the Ofgem Confidence Code to require accredited Price Comparison Websites to display ToU tariffs in a comparable way.
- Introduce changes to the retail market that lower entry barriers, reduce compliance complexity for innovators, and create space for experimentation with new services and business models.

Government

- Ensure that a significant proportion of the £13.2 billion Warm Homes Plan funding supports low-income households to access LCTs, including batteries and heat pumps.
- Protect households unable to participate in DSR by committing to reducing energy bills for everyone, including through shifting policy costs currently levied on electricity bills into general taxation.
- Adopt a more joined-up approach to energy advice: integrate flexibility messaging into wider energy touchpoints—such as during home energy upgrades. This includes establishing a National Advice Service in England, with advisors trained to support households on both energy upgrades and flexible energy use.
- Include the concept of DSR as a key element in the national awareness campaign under the Warm Homes Plan.
- Broaden the remit of Smart Energy GB beyond smart meter adoption, enabling them to play a wider role in raising awareness of flexibility and supporting public understanding.

DNOs

- Work alongside local trusted messengers to engage households—e.g. local community organisations and anchor institutions (such as schools), LCT installers, independent consumer groups, or known, trusted brands.

Introduction

Over the past two decades, the UK's electricity system has undergone significant change, shifting from a predominantly centralised structure dominated by fossil fuels to a more decentralised model with smaller-scale, distributed sources.

OVER
50%
of total electricity generation in 2024 came from zero-carbon technologies

In 2024, zero carbon technologies accounted for over 50% of total electricity generation.[1] This transition is set to accelerate further over the next five years, as the government has set an ambitious target to achieve carbon-free electricity generation by 2030.[2]

In a fully decarbonised electricity grid, renewable technologies, like wind and solar, are expected to make up at least 70% of annual generation.[3] Due to the intermittent and variable nature of these technologies, this shift presents a challenge: as fossil fuel power stations are phased out, much of the traditional dispatchable generation that has provided system flexibility will be gone.[4]

Ofgem defines flexibility as:

"modifying generation and/or consumption patterns in response to an external signal (such as a change in price) to provide a service within the energy system."[5]

These are generally categorised into two groups: energy balancing and system services. Energy balancing ensures that electricity supply consistently matches demand, while system services support the smooth operation of the networks, such as voltage control.[6] As the share of variable renewable generation grows, low-carbon flexibility will be critical to maintaining the stability and reliability of the electricity system.

Compounding the challenge is the projected near tripling of electricity demand by 2050,[7] primarily driven by the electrification of heating and transport. Adding new electrical demand could strain the networks by significantly increasing the peak load at distribution level, leading to constraints.[8] Electricity constraints arise when the network lacks sufficient capacity to meet demand in a specific area or to transport electricity efficiently across the system. This can be due to high local demand, limited infrastructure, or both.

COST SAVINGS

Low-carbon flexibility can help to minimise peak load, reducing the need for additional renewable generation and network reinforcement, leading to potential system-wide cost savings of between:

£9.6 - £16.7 billion annually by 2050.[9]

There is increasing recognition of the role that demand-side approaches can play in delivering low-carbon flexibility. Demand side response (DSR) is when households, commercial buildings, or industrial businesses adjust their electricity consumption—either by increasing, decreasing, or shifting usage—based on price signals. While the concept of load shifting has existed for over a century,[10] recent advancements in information technologies have opened up new opportunities, particularly for residential participation.[11]

According to recent modelling, unlocking domestic flexibility is a triple win:[12]

1. **It reduces energy bills**
   A household participating in DSR could save up to £375 per year on energy bills in 2040. Even those who are not participating will still save £105 per year, due to the reduced cost in wholesale prices.

2. **It reduces carbon emissions**
   Without household flexibility, we would need to build the equivalent of four new gas-fired power stations to meet peak electricity demand in 2040, at the cost of £2.5 billion alongside the associated carbon emissions.

3. **It minimises the amount of network reinforcement needed**
   The reduction of energy demand during peak times minimises costly upgrades to the networks, which could reach almost £1 billion. Overall energy system savings could reach £14.1 billion by 2040.

DEMAND

Peak demand from residential electric vehicles (EVs) and heat pumps is expected to reach up to:

26.5 GW by 2040

greater than the peak demand of all households in 2022.[13]

While these technologies will increase overall electricity demand, EV charging and heat pump operation can be shifted away from peak times helping to balance the grid and reduce strain during periods of high demand.

The recent Future Energy Scenarios 2025 published by the National Electricity System Operator (NESO) model that flexibility from households and businesses could reduce peak electricity demand by up to 54% by 2050, through measures such as flexible home heating, smart EV charging, and Vehicle-to-Grid (V2G) technologies, where EVs not only charge flexibly but also export electricity back to the grid during peak periods.[14]

Understanding participation: implicit vs explicit

In the UK, there are currently two main routes for households to participate in DSR, typically referred to in the literature as implicit and explicit.[15] Participation in both implicit and explicit DSR programmes generally requires a smart meter (excluding Economy 7).

Implicit DSR is when households sign up to a ToU tariff that offers cheaper prices during off-peak periods and higher prices during peak times. A long-standing example in the UK is Economy 7 which offers reduced electricity prices during a fixed 7-hour overnight window. Recent years have seen significant growth in the number and variety on the market, including some dynamic ToU tariffs, where electricity prices vary throughout the day in near real time, based on wholesale electricity prices. The key feature of implicit DSR is that households are not prompted to act in response to a specific system request. Instead, they are continuously exposed to ongoing price signals built into their tariff aimed at reducing peak electricity consumption. Whilst this supports overall system efficiency, it may not always align with real-time grid needs or local network constraints.[16]

For explicit DSR, households are invited to take part in specific events in response to a known or forecasted need on the electricity system.[17] For example, a Distribution Network Operator (DNO) may issue a turn-down request, asking households to reduce their electricity use during that period. Participation is on an opt-in basis, and households are rewarded with direct payments based on the electricity they reduce compared to their typical usage. Explicit DSR is often delivered as a programme that households actively sign up to, however, it can also take the form of one-off requests from energy suppliers.

A recent example of an explicit DSR programme is the Demand Flexibility Service (DFS), launched by NESO (called ESO at the time) in winter 2022–23.[18] Over 1.6 million households and businesses participated in the programme, helping to balance the national electricity network during periods of peak demand. Participants signed up to the programme, and for each turn-down event, they were notified ahead of time and had to explicitly opt in to take part. Those who chose to participate were rewarded based on how much electricity they reduced during the specified window. While the scale of sign-up was significant in the first year, feedback revealed that engagement levels throughout the programme were less successful.[19] Very few survey respondents reported taking part in all—or nearly all—of the available turn-down events, suggesting that continued participation over time remains a key challenge for explicit DSR programmes. The DFS returned in 2023–24 with even greater uptake, involving 2.6 million households and businesses.[20] In 2024–25, the programme has been extended further, moving from a seasonal initiative to a year-round service.

Explicit DSR is not limited to reducing electricity use during peak times—it can also include 'turn-up events', where households are encouraged to increase their electricity consumption during periods of excess renewable generation, typically through cheaper or free electricity. These events help make use of surplus electricity, for example by preventing the curtailment of wind turbines when supply outstrips demand. Crowdflex, an ongoing trial involving 100,000 domestic customers, has tested both turn-up and turn-down events.[21] The trial found that engagement with turn-up events was higher than with turn-down, highlighting the potential appeal of this approach to households.

An evolving consumer landscape: the role of Ofgem and third-party aggregators

DSR aggregators facilitate domestic participation. These include licensed energy suppliers, as well as independent third-party aggregators — commercial entities that offer flexibility services without supplying electricity themselves. These stakeholders aggregate demand reductions across multiple households and participate in energy markets on their behalf.[22,23] They typically coordinate explicit DSR programmes by recruiting participants, notifying them of turn-down events, and managing the delivery of payments or rewards. For example, during the first year of the DFS, over 85% of participants reported hearing about the scheme through their DFS provider, which comprised of energy suppliers and third-party aggregators.[24]

This growing role for aggregators is underpinned by regulatory and market reform. One of the most significant changes is the Market-Wide Half-Hourly Settlement (MHHS) reform, due to be rolled out between September 2025 and July 2027.[25] By settling electricity use based on actual half-hourly consumption rather than estimates, MHHS reform is expected to provide households with more accurate bills, clearer price signals, and opportunities to save money by shifting their demand.[26] This reform also creates new opportunities for innovation from third-party aggregators and energy suppliers, who can offer tailored, time-sensitive products and services.

As the regulator of Great Britain's energy system, Ofgem plays a central role in shaping how suppliers engage with households. It is responsible for setting and enforcing standards of conduct, protecting consumers—particularly those in vulnerable circumstances—and creating the conditions for fair, innovative markets. This includes monitoring whether suppliers meet their obligations around household engagement. For example, in the smart meter rollout, Ofgem oversees supplier compliance with installation targets set by the Department for Energy Security and Net Zero (DESNZ), including whether households have been offered a smart meter.

Ofgem has already taken steps to support the transition to a more flexible system, through initiatives such as innovation funding, voluntary codes of practice, and consultation on future licensing regimes. For example, though independent third-party aggregators are not subject to a dedicated regulatory licence, Ofgem have funded the HOMEflex Code - a voluntary code of practice which sets minimum standards for third-party aggregators in the flexibility market for domestic customers to ensure fair treatment.[27] While this code is not legally binding, it helps to promote professionalism and offers customers a route for raising concerns. Ofgem is also addressing wider system enablers, such as data sharing infrastructure. Its proposed Consumer Consent Service aims to give households greater control over who can access their energy data. This is intended to support the development of consumer-friendly flexibility offerings by enabling secure, transparent, and user-led data sharing.[28]

Despite this momentum, key barriers remain. Complex regulatory codes, misaligned incentives, and lengthy approval processes can stifle innovation in the retail market.[29]Overcoming these challenges will be essential to unlocking the full potential of domestic flexibility.

What we've learnt so far: barriers and motivations

From the literature, several key barriers to household engagement with domestic DSR have been identified. Firstly, a lack of awareness can result in households missing opportunities to switch to a ToU tariff or participate in DSR programmes.[30,31] This is compounded by a broader lack of energy literacy among households, resulting in low confidence and limited skills needed to navigate complex tariffs.[32] Energy is not typically perceived as a commodity, but rather is consumed as a by-product of the practices it enables—such as cooking, washing, and heating.[33] Consequently, many people are unaware of their energy use because it is often abstract and invisible in everyday life, making it harder to understand and engage with.[34, 35,36] However, there is evidence of a slight increase in energy literacy among households following the smart meter rollout and the recent energy crisis,[37,38] which could help to make households more receptive to DSR initiatives.

ToU pricing adds a further layer of complexity to an already poorly understood system.[39] In a recent Which? report, researching and comparing tariffs was described by respondents as time-consuming and mentally overwhelming, although satisfaction was high among those who did switch.[40] Notably, these participants were likely more engaged than the general population, with above-average uptake of low-carbon technologies (LCTs), such as EVs. However, the Which? findings are broadly consistent with other studies, including the Low Carbon London trial, where 77% of survey respondents said they would keep the ToU tariff they were trialling if given the choice.[41] Taken together, these findings suggest that for implicit forms of DSR, the main barrier is not satisfaction with the experience, but rather the initial hurdle of signing up. Additional barriers to signing up to a ToU can include status quo bias (it feels easier to stick with the default option), decision fatigue, or a perceived lack of meaningful benefit to switching.[42]

Furthermore, the effort associated with participation—especially where manual adjustments are involved—can deter engagement.[43] For example, households may need to consciously avoid using high-consumption appliances—like washing machines, dishwashers, or ovens—during peak hours, which can be inconvenient and hard to maintain over time. Research exploring households' satisfaction with the DFS after the first year found that despite the high sign-up rate, very few survey respondents reported taking part in all, or nearly all, of the available turn-down events.[44] In response to the question of what the main challenges of participating in the DFS had been, the second and third most cited answers were, "Having to plan and change routine" (31%), and, "Remembering turn-down events are happening" (27%) – both challenges related to manual participation. Even among motivated households, competing priorities and everyday pressures often make it difficult to engage consistently, especially when flexibility events conflict with work, caring responsibilities, or other aspects of daily life.[45]

The limited rollout of second-generation smart meters and unreliable in-home displays, further hinder uptake.[46] One recent study of UK adults found that households with smart meters were significantly more aware, confident, and engaged with flexibility, and more likely to understand its wider system benefits. Smart meters appear to act as both a technical and psychological gateway to participation—yet many people without one remain unaware that a smart meter is essential for participating in both implicit and explicit DSR.[47]

There are also structural inequalities in people's capacity to participate in DSR, often referred to as 'flexibility capital'. This varies across the population and is shaped by both technological and social factors, including life stage, caring responsibilities, culture, religion, and wealth.[48] For many households, electricity routines are tightly fixed around daily schedules, making them difficult to shift—particularly for those with children or other caring responsibilities.[49,50] Research has shown that conventional households have limited flexibility in electricity

use[51,52]: while some activities, like washing or dishwashing, can be rescheduled, core practices such as cooking are far less adaptable.[53,54] Space and water heating account for the majority of annual domestic energy demand—far more than lighting, appliances, or other uses.[55] As a result, heating represents one of the principal sources of flexibility in the home, once electrified. However, most households still rely on gas central heating,[56] undermining opportunities to build meaningful flexibility capital. There are growing concerns that disparities in access to DSR programmes remain under-addressed, particularly in relation to gender, income, and age-related inequalities.[57]

Across the literature, financial incentives, such as lower energy bills or financial rewards, consistently emerge as the most common motivation for household participation in DSR schemes.[58,59,60,61] However, several studies highlight the importance of non-financial motivations, which often underpin longer-term or more meaningful engagement. These include environmental concern, a desire to support local sustainability efforts, and social or psychological drivers—such as encouragement from family or neighbours, or a sense of pride in contributing to a shared goal.[62] The Crowdflex trial found that while financially framed messages (e.g. "get paid") were the most effective in recruitment, the difference between financial and non-financial framings was smaller than expected.[63] Furthermore, the trial found no evidence that price sensitivity affected response; households tended to shift a similar amount of electricity regardless of the price per kilowatt-hour. Similarly, qualitative analysis of the DFS—including diary entries from participants—found that successful engagement was often underpinned by non-financial motivations, alongside access to enabling technologies and previous experience with flexibility.[64] A Danish study found a similar pattern: although quantitative results pointed to financial savings as the main driver, interviews revealed that many participants were also motivated by doing "the right thing" or joining in because "everyone else was doing it."[65] Other research has shown that shared community goals can help sustain participation more effectively than financial rewards alone.[66]

Overall, while financial incentives are key to initial uptake, long-term engagement appears to depend on a wider set of social, psychological, and normative factors—aligning with a wider set of literature that challenges the idea that household energy decisions are purely economically rational.[67]

Key enablers of domestic DSR

A common distinction is made between manual and automated participation in DSR.[68] This applies to both participation through ToU tariffs (implicit DSR) and through explicit DSR programmes: manual participation typically involves individuals actively adjusting their energy use in response to prompts or incentives—such as turning off appliances during peak periods. In contrast, automated participation relies on enabling technologies or third-party systems that shift energy use on the household's behalf, often without requiring real-time decisions from occupants. Direct load control refers to an approach where an external party—such as an energy supplier, aggregator, or network operator—is given the ability to remotely control specific electrical appliances with the household's consent.[69]

Trials comparing different approaches have shown that automated systems can deliver greater and more persistent reductions in electricity use during peak periods than manual methods.[70] One UK-based study found that households in a trial in Manchester, where heat pumps were automatically controlled, achieved a demand response around 25 times greater than households in a trial in London, who relied on manual actions—despite high levels of engagement in both groups.[71] Additionally, a recent HeatFlex trial demonstrated that remote control of heat pumps could reduce demand without compromising comfort, with 81% of participants reporting satisfaction with their home temperature during events.[72] In addition to boosting impact, automation can help address the issue of user fatigue sometimes associated with manual participation,[73] making it easier for households to respond to ToU tariffs.[74,75] Though paradoxically, accessing and understanding how to use these enabling technologies can itself be difficult and complex for many households.[76]

Evidence on public acceptability of automation is mixed. One study found that direct load control was the most preferred option among a set of tariff types, including manual ToU tariffs—suggesting some openness to automated systems that are simple and effective.[77] Where automation has been found to be acceptable, it is typically under tightly defined conditions—such as the ability to override.[78,79] However, more recent research among UK adults pointed to relatively low levels of acceptance with automation, particularly for key technologies.[80] Only 6% of respondents said they would be comfortable for their EV charging to be automated and only 5% when it came to heat pumps. Concerns around cost, loss of control, comfort, and unfamiliarity with the technology were the most cited. Some households remain wary of giving up control of household appliances, especially if they don't fully understand the systems or fear potential disruption.[81] Building trust, offering clear benefits, and ensuring users feel in control will be crucial to increasing uptake and delivering the full potential of automation in domestic flexibility.[82]

Another key enabler of household participation in DSR is access to LCTs—such as heat pumps, EVs, and battery storage—which not only increase a household's flexibility but also offer greater opportunities for automation and optimisation within the home.[83,84,85] The financial savings for households with LCTs participating in DSR is significant. For example, using heat pumps with a flexible ToU tariff could save an average household £640–£750 per year on their energy bills,[86] whilst those with a battery and a dynamic tariff could save up to £679.[87]

Further, a Which? study found that LCT ownership can act as a trigger point for households to engage with implicit DSR.[88] For example, some participants who had recently purchased an EV began exploring ToU tariffs to reduce charging costs. However, the same study also found that many EV owners were unaware for a significant period after purchase that they could benefit from flexible tariffs—highlighting that access to technology alone is not sufficient. Timely information, guidance, and support are also essential to activate flexibility potential. Although LCTs are critical for enabling flexibility of energy use,[89] the upfront costs of these technologies are still likely to present a barrier for many households, particularly those on lower incomes.[90,91,92]

A socio-technical transition: the role of households in unlocking DSR

While the system-wide benefits of domestic flexibility are widely recognised,[93,94] the key challenge is how to unlock it at scale. The transition to net zero cannot be understood as purely a technical challenge, but instead a socio-technical transition—one that requires not only technological innovation, but also significant changes in behaviours, institutions, and everyday practices.[95] Primary barriers to local integration of LCTs and services are frequently non-technical in nature—often stemming from issues such as social acceptance, resistance to change, and conflicting visions.[96]

DSR and the uptake of smart technologies represent a notable shift in how households interact with the energy system. Microgeneration technologies allow households not only to consume electricity, but also to generate and store it—transforming them into "prosumers" who can contribute energy back to the grid.[97] In parallel, households are increasingly expected to engage actively with how and when they use electricity. This marks the emergence of 'energy citizens'—active, rather than passive, participants in the energy transition[98] and a key component of a more flexible, decentralised system.

48% **of the population feels that the transition is being done to them, instead of with them.**

Despite this growing expectation of households to play a more active role, research commissioned by The MCS Foundation shows that whilst there is broad public support for the 2050 net zero target, this has not translated into widespread behavioural change.[99] Many people remain sceptical about the feasibility of achieving net zero, and nearly half (48%) of the population feels that the transition is being done to them, instead of with them. Trust in government efforts to engage the public is low, and many feel uninformed about the actions required.

Research consistently shows that pro-environmental attitudes do not necessarily result in pro-environmental behaviours.[100,101] The 'value-action gap' is well documented in the retrofit literature: while public support for tackling climate change remains consistently high, it often fails to translate into meaningful retrofit activity.[102,103] This inertia is reinforced by a lack of clear communication and practical support for households,[104] leading to widespread uncertainty about which retrofit measures are appropriate and how they can be financed.[105] In this vacuum, the media has at times stepped in to shape the narrative—but not always in ways that build trust.[106] This disconnect poses a fundamental challenge to realising the potential of domestic DSR, which ultimately depends on household participation.

Study Objectives

This report seeks to address that challenge by exploring what effective household engagement looks like across both implicit and explicit forms of DSR.

While recent research—particularly around the first year of the DFS—have generated valuable insights into motivations, barriers, and early participation patterns, most research to date has focused on trial-specific populations.[107,108] Though some research has begun to explore elements of household engagement in flexibility,[109,110,111,112] there remains a lack of studies that focus specifically on how to improve engagement strategies—and that bring together both public attitudes and expert perspectives to address this question.

This research aims to help fill that gap by:

1. Investigating public attitudes towards DSR, including awareness, current participation, barriers, and motivations.
2. Identifying principles of effective engagement, drawing from interviews with experts in consumer engagement and DSR.
3. Proposing a practical framework for engaging households across different forms of DSR.

In July 2025, the UK government published its Clean Flexibility Roadmap that sets out how consumer-led flexibility will be integrated into the electricity system, identifying consumer engagement as a key workstream.[113] This report therefore comes at a timely moment: interest in domestic DSR is growing rapidly, not just among policymakers but also across the commercial landscape, including energy suppliers, DNOs, NESO, Ofgem, and third-party aggregators who all recognise its potential. As more actors seek to design or deliver flexibility offerings, the need for clear, well-evidenced engagement strategies becomes increasingly urgent.

This report is intended to support that effort—providing timely insights and recommendations for those involved in shaping the future of household flexibility in the UK.

Methods

The study consisted of two research phases which explored the awareness, barriers and motivations for consumers to participate in both explicit and implicit DSR.

YouGov survey

Interviews

Firstly, an online YouGov survey of a nationally representative sample of 2,095 respondents was conducted in April 2025 to assess the UK public's opinions on DSR. A range of demographic data, such as age, income, house tenure, and house type, was also collected.

This was followed by 20 interviews with consumer engagement and DSR experts from a range of technical, Non-governmental Organisations (NGOs) and academic backgrounds (Table 1). The interviews followed a semi-structured format to allow for cross-interview analysis, whilst also accommodating for the wide range of interviewee knowledge.

The interviews were held online between April - May 2025. A thematic analysis was conducted on the interview transcripts, to identify the most frequently referenced concepts and discussion points.

Table 1 *– Interviewee participants in the study (n=20).*

Type of expert	Count
Industry experts	5
Domestic flexibility procurer (e.g. Energy supplier/DNO/third-party aggregator)	3
Community energy group	3
Consumer advocacy group	3
Academic	6

Results

Current awareness, participation and interest in demand side response in the UK

Current awareness and participation

11% **of UK adults are currently on a ToU tariff**

59% **remain on standard fixed or variable tariffs**

Despite the recent rise in offers available, only 11% of UK adults are currently on a ToU tariff, compared to nearly three-fifths (59%) who remain on standard fixed or variable tariffs (Figure 1).

However, the survey revealed potential for increased uptake. Among those currently on standard tariffs, 32% reported being very or fairly likely to switch to a ToU tariff in the future (Figure 2). Nonetheless, 41% said they were unlikely or very unlikely to make the switch, suggesting that there are still barriers to participating in implicit DSR for certain households.

Figure 1 *- "What type of electricity tariff do you currently have?" (n=2,095)*

Tariff types among UK adults

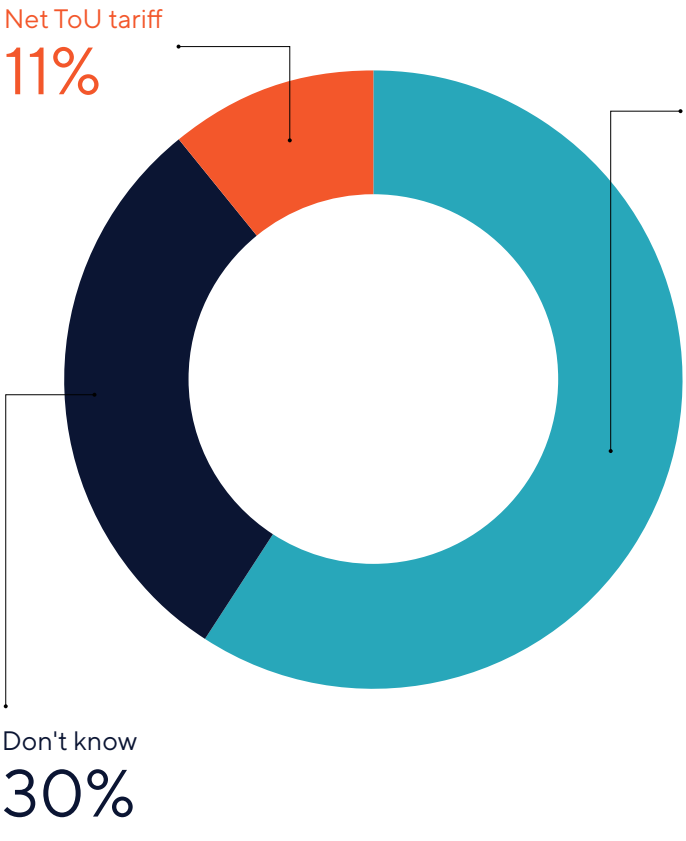


Figure 2 *- " [For those who answered that they are currently on a standard tariff, Figure 1] "What is the likelihood of you switching to a time-of-use tariff in the future where pricing varies at different times (for example daytime, night-time and peak rates)?" (n=1,320)*

Likelihood of switching to ToU tariff	%
Very likely	7%
Fairly likely	25%
Fairly unlikely	22%
Very unlikely	19%
Don't know	28%

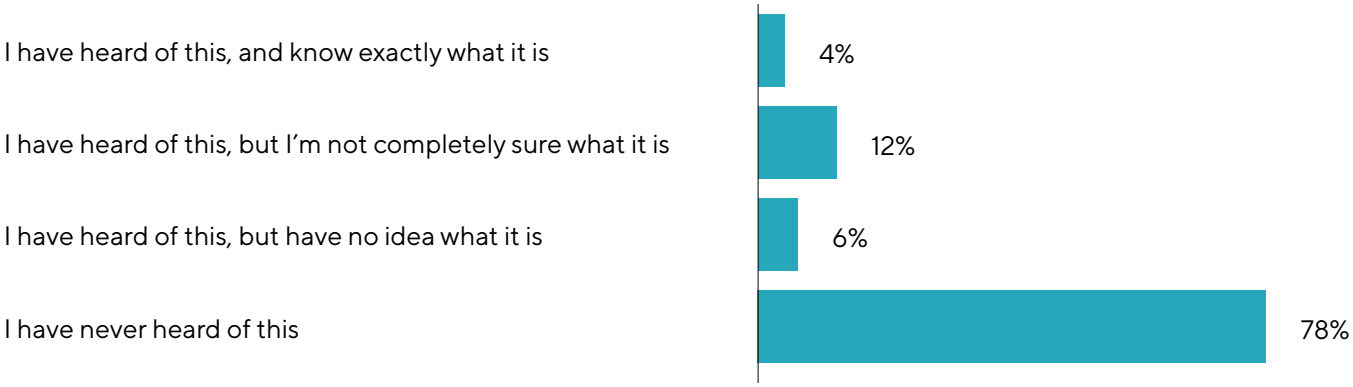
30% **of respondents did not know what tariff they were on**

The survey also pointed to a broader lack of awareness and confidence among UK adults when it comes to electricity tariffs. Nearly a third (30%) of respondents did not know what tariff they were on, and 28% of those on standard tariffs were unsure whether they would switch to a ToU tariff in the future. These findings align with other studies, for example, the Which? report found that many households miss out on ToU opportunities due to low awareness.[114]

Furthermore, public awareness of explicit DSR programmes remains low. After being provided with a simple definition, 78% of survey respondents said they had never heard of it, and only 4% reported knowing exactly what it is (Figure 3). This limited awareness was echoed in the expert interviews, with several interviewees suggesting that public familiarity with explicit DSR is likely to be even lower than with ToU tariffs, which have existed for decades. One interviewee observed that while many people understand the concept of cheaper electricity at night, "the explicit stuff [is understood] less so."

***Figure 3** - "How familiar, if at all, are you with the concept of demand side response?" (n=2,095)*

Familiarity with DSR



However, several interviewees argued that understanding the term "demand side response" is not essential for participation. As one expert put it (interviewee #13, consumer advocacy group), "I think what matters is: do people respond to the signal?". The first year of the DFS saw 1.6 million households and businesses take part, despite limited awareness of DSR more generally. Effective communication about DSR must recognise the gap between technical terminology and people's intuitive understanding. While many households may not be familiar with terms like "demand side response," they may still grasp the underlying idea of shifting energy use. This suggests that communicators should focus on relatable, everyday language to make the concept more accessible and ensure wider engagement.[115] For example, Octopus Energy advertise their "Saving Sessions" on their website, featuring simple phrases such as "we pay you to use less power", step by step instructions on how to partake if interested, and FAQs at the end.[116]

Future interest

Encouragingly, there was interest amongst respondents to learn more about explicit DSR programmes, despite current low levels of awareness.

- 53% of respondents said they were either very interested or quite interested in receiving information about DSR programmes, while only 25% were either not very interested or not interested at all.
- Only 3% reported currently receiving any DSR-related information from their energy supplier.

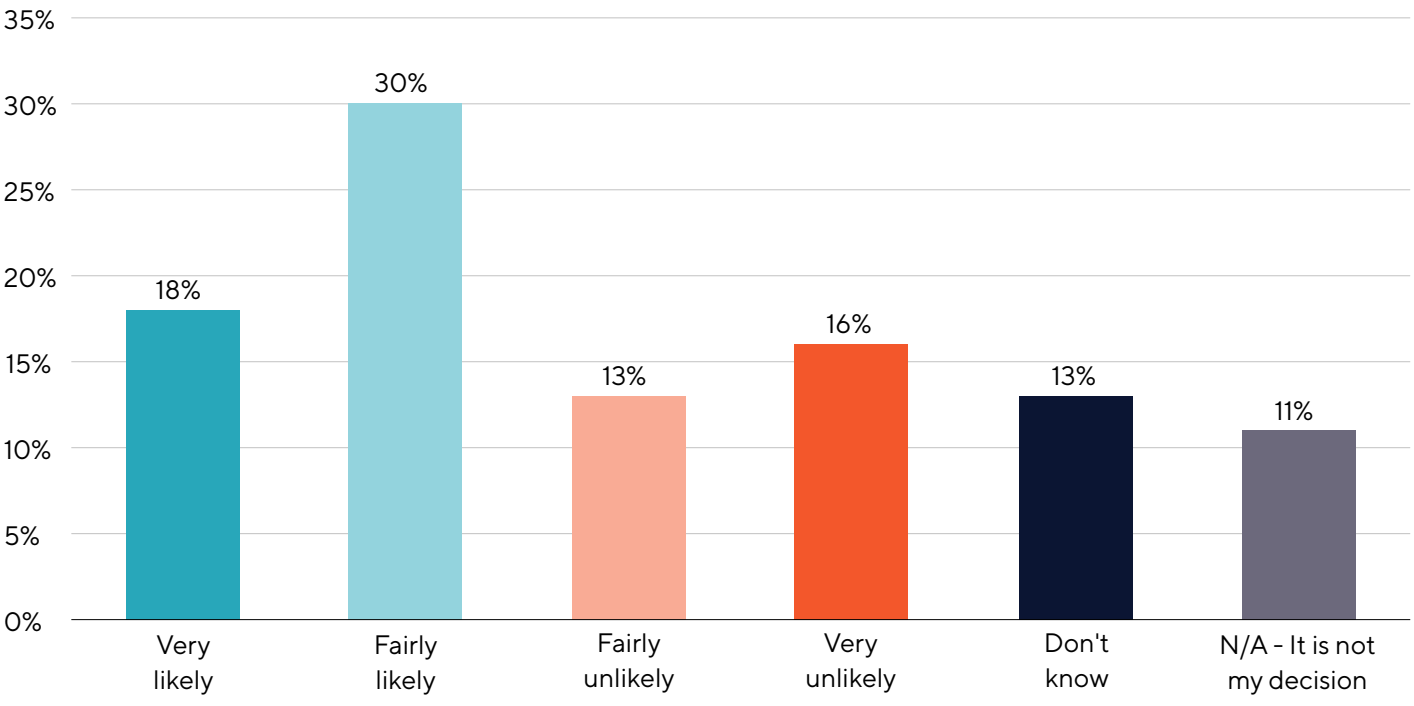
This suggests two possibilities: either energy suppliers are not proactively communicating about DSR, or more likely, households are not noticing or engaging with the information provided. In either case, the findings highlight a clear opportunity to improve communication and outreach—particularly given the evident public interest in learning more.

48% **of respondents indicated they were very or fairly likely to participate in a future explicit DSR programme.**

Almost half of respondents (48%) indicated they were very or fairly likely to participate in a future explicit DSR programme, with 18% saying they were very likely (Figure 4). These findings demonstrate a promising appetite among UK households for greater involvement in explicit DSR programmes, suggesting potential for scaling up if information and engagement strategies improve.

Figure 4 *- "How likely or unlikely are you to consider participating in a demand side response programme?" (n=2,095)*

Likelihood of participating in a DSR programme



Implicit DSR as a gateway into explicit DSR

Households already on ToU tariffs showed considerably higher awareness and likelihood of participating in explicit DSR programmes compared to the average respondent.

16%

of those on a ToU tariff had heard of explicit DSR and knew exactly what it was, compared to just **2%** of those on a standard tariff.

23%

of those on a ToU tariff had some familiarity with explicit DSR, compared to **8%** of those on a standard tariff.

50%

of ToU users had never heard of explicit DSR, compared to **84%** of those on standard tariffs.

30%

of ToU users said they were very likely to consider participating in an explicit DSR programme, compared to **19%** of those on a standard tariff.

This pattern was also seen in the first year of the DFS, where participants who were already familiar with ToU tariffs reported finding it easier to develop habits around DFS events and were more likely to view the intervention as routine rather than disruptive.[117] Furthermore, those who answered that they had never heard of explicit DSR were also significantly less likely to answer that they would be "very likely" to participate in a DSR programme (16%).[i]

This mirrors the findings from other studies which have found that consumers who had a better understanding of the concept of balancing energy demand were more positive about the idea of flexibility.[118] These insights suggest that familiarity with the concept can play an important role in enabling participation, and that improving understanding may help support wider engagement.

[i] Statistically significant where $p<0.001$

Why is current uptake low? Exploring the barriers

Among those unlikely to switch to a ToU tariff in the future, the most commonly cited reasons are shown in (Figure 5).

Figure 5 *- "For which of the following reasons, if any, are you unlikely to switch to a time-of-use electricity tariff?" Please select all that apply." (n=530)*

Reasons unlikely to switch to a ToU tariff

I would struggle to shift my electricity usage away from peak times	36%	I don't know enough about this	15%
I'm happy with my current tariff/provider	34%	It sounds too complicated	15%
I don't think I'd save enough money	32%	It is too much time and effort to switch	10%
I don't want to think about when to use electricity	30%	Other	5%
I don't want a smart meter	19%	N/A – it is not my decision to make	2%
I don't trust energy companies	19%	Don't know	<1%
I don't have a smart meter	16%		

These results were consistent with DESNZ's public attitudes survey, which found that in Winter 2024, the reasons respondents would be unlikely to switch to a ToU tariff were "I don't want to have to think about when to use electricity (41%), "wouldn't save enough money" (35%) and "happy with current tariff provider" (35%).[119]

For explicit DSR, the main factors chosen by respondents as most likely to discourage them from participating in a DSR programme are shown in (Figure 6).

***Figure 6** - "Which of the following factors, if any, would most discourage you from participating in a demand side response programme? Please select up to three." (n=2,095)*

Factors which discourage from participating in DSR programmes

I expect too little financial benefit	29%	None of these	11%
I think it will be too disruptive to my daily routine	17%	N/A – It is not my decision to make	10%
I lack general knowledge about the experience of participating in DSR	15%	Don't know	9%
I do not think I will be able to shift my electricity use away from peak times	14%	My electricity usage is too low	8%
I do not want to inconvenience myself	14%	I have had negative experiences with companies in the energy sector	5%
I am concerned about the unauthorised use of my data by the programme operator	14%	I don't know how to reduce my electricity consumption	4%
I don't have the right technologies to participate (e.g. smart meter)	13%	Other	3%

Though these survey results highlight the barriers to DSR perceived by the public, the expert interviews established a range of challenges to unlocking household engagement in DSR, which varied from technological to societal factors.

1. Lack of interest and competing priorities

Several interviewees highlighted that most people are not interested in energy for its own sake. As one expert (interviewee #15, academic) put it:

"They just want to get their laundry done or get to work or keep their home [warm] or have a hot meal. They're not... interested in energy for its own sake."

This was reflected in the survey results, where a common reason that respondents were unlikely to switch to a ToU tariff was that they "don't want to think about when to use electricity" (Figure 5). Whilst this may not be a barrier to engagement through automation – which allows households to participate without actively thinking about when to use electricity - several interviewees differentiated this from manual participation. One expert (interviewee #6, domestic flexibility procurer) explained:

"there's [a] level [of] engagement whereby [their supplier] can come up with a proposition and they sign up to it — they've engaged once, and then it's automated, and it runs, and they don't think about it again. That's very different from an ongoing engagement, where what you might do might be different on different days. That's a much higher level of interest to be sustained..."

This lack of interest in energy, as well as competing priorities may limit households' ability to engage manually in both implicit and explicit DSR, especially over longer periods. This may be especially prevalent for certain demographics, according to one interviewee (#13, consumer advocacy group):

"The greatest depth of fuel poverty is among people who are in work, and that's also coupled with the fact that they're often working multiple jobs with children. [They] just don't have the time to think about when they're going to switch their dishwasher on if they have one, when they're going to wash their clothes, it's just...a million miles away from where they are"

This was also indicated in the survey results. Those working full time (more than 30 hours per week) were statistically more likely[ii] to list the following factors that would discourage them from participating in an explicit DSR programme: "I think it will be too disruptive to my daily routine" (21%) and "I do not want to inconvenience myself" (18%). Together, the interviews and survey data highlight how structural time constraints and low interest in energy could limit manual engagement, reinforcing the case for automated, low-effort solutions.

2. Complexity of tariffs and DSR programmes

> **"People really find it hard to engage with energy tariffs because they are quite complex."**
>
> Interviewee #14, consumer advocacy group

Complexity and confusion around DSR emerged as a barrier in the interviews. One interviewee described the process of finding a suitable DSR tariff challenging for households, and that this extends to normal energy tariffs as well; "People really find it hard to engage with energy tariffs because they are quite complex." (Interviewee #14, consumer advocacy group). It is also difficult for households to compare ToU tariffs with standard ones.

[ii] Statistically significant where $p<0.001$

Market comparison websites do not currently include ToU options, making it hard to know in advance whether switching would lead to savings. This reflects other studies, which have found that due to the complex, technical nature of energy-related decisions, only a minority of well-informed consumers are capable of making these decisions by gathering and analysing the necessary data.[120] This highlights a broader issue around engaging households with the current energy system – many require greater support and clearer guidance even to choose a standard tariff, let alone to navigate newer, more complex options such as ToU tariffs.

However, once households find a tariff that suits them, people often establish routines around off-peak periods, and satisfaction is generally high according to another interviewee (#2, industry expert):

"Once customers adopt ToU tariffs, they tend to stick with them... On that heat pump ToU tariff, 98% of customers stayed on it or just switched to another type of ToU tariff."

This highlights the potential value of offering households a penalty-free trial period—giving them a chance to try out ToU tariffs without risk before deciding whether to commit.

3. Flexibility capital

Several interviewees highlighted that households may be limited in their ability to be flexible due to a lack of flexibility capital — the resources, technologies, and life circumstances that enable people to shift their electricity use. As one interviewee (#6, domestic flexibility procurer) maintained,

"People's ability to flex depends on their life circumstances, like who's in the house, when are they in the house, what needs they have."

Many households may find that their electricity usage is neither substantial enough to generate meaningful savings nor flexible enough to shift. For example, the most cited reason that respondents were unlikely to switch to a ToU tariff was that they would "struggle to shift usage away from peak times" (Figure 5). This can also disproportionately affect certain demographics. For instance, survey results showed that lower-income respondents (where household income <£20,000) were statistically more likely to feel discouraged from participating in explicit DSR schemes because their electricity usage was too low (14%) compared to respondents with a household income over £20,000 (7%).[iii] Flexibility capital is influenced by accessibility to smart technologies (e.g. smart appliances) and LCTs. As one interviewee (#2, industry expert) noted:

"People...adopting EVs and heat pumps, naturally, will have more of a stake in having ToU tariffs, which save them money because they have more electricity load to shift."

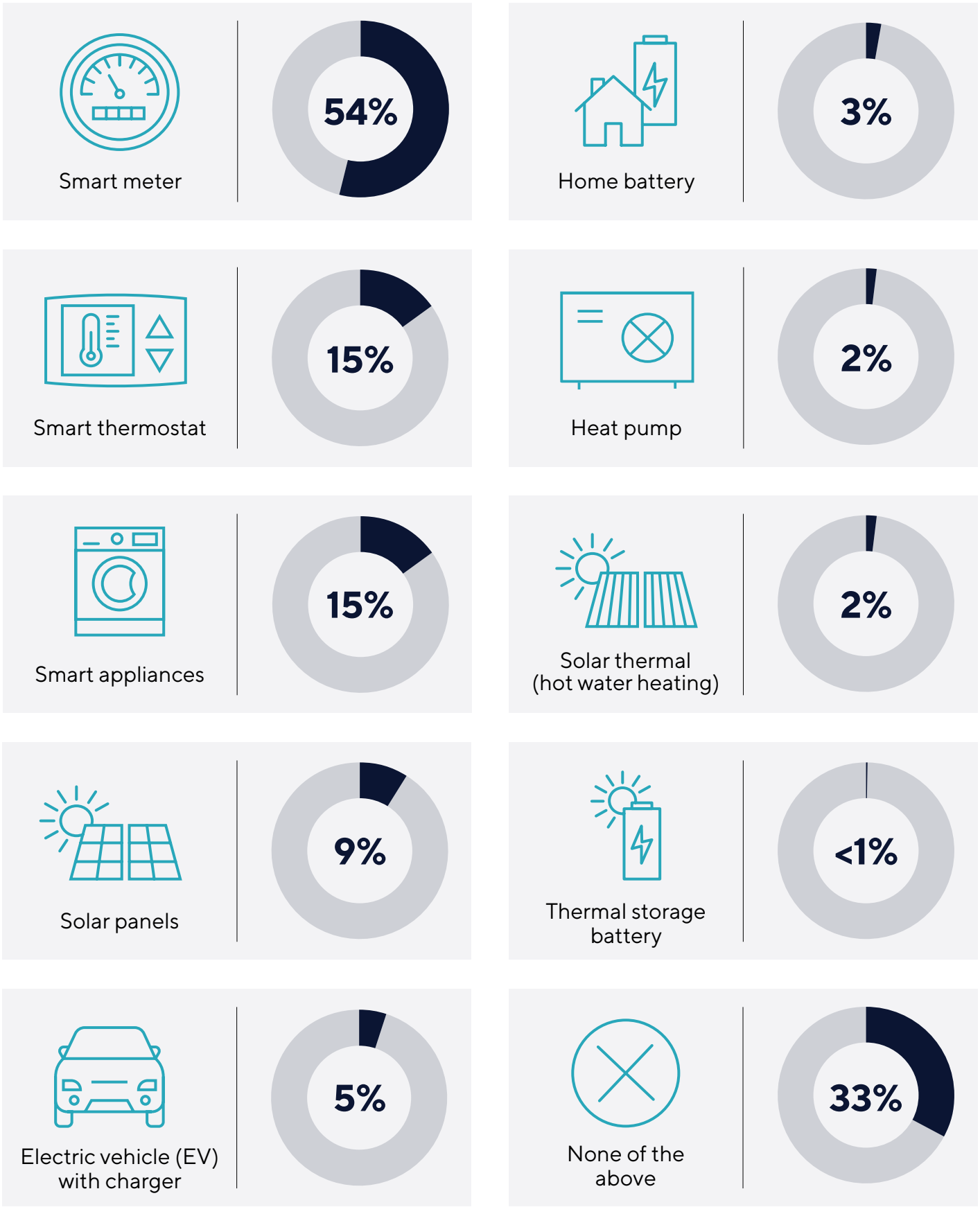
33% **of respondents answered that they did not have any smart technologies in their home.**

In the survey, 33% of respondents answered that they did not have any smart technologies in their home (including LCTs and smart appliances) which suggests that a proportion of households may be structurally limited in their ability to participate in DSR, simply because they lack sufficient flexible electricity use (Figure 7).

[iii] Statistically significant where p<0.001

Figure 7 - "Do you currently have any of the following technologies in your home? Please select all that apply." (n=2,095)

Technologies at home



4. Smart meter rollout

54% **of respondents reported having a smart meter in their home**

Many interviewees identified the smart meter rollout as a key barrier to scaling domestic DSR. In our survey, only 54% of respondents reported having a smart meter in their home—and even among owners of LCTs, 38% said they did not. This represents a potential technical barrier to participation, as smart meters are a requirement for most DSR programmes and ToU tariffs. Notably, 19% of those who were unwilling to switch to a ToU tariff cited not wanting a smart meter as the reason (Figure 5). Compounding the issue is the reliability of installed devices. Around 20% of households with smart meters—equivalent to 2.86 million homes—still have to submit manual readings due to device malfunctions.[121] As one expert (interviewee #10, community energy group) noted:

"They're not working... it's just a real limiting factor on the transition and on consumer trust."

Even where smart meter data is technically available, it is not always accessible or meaningful to users. The same interviewee described how, in social housing trials, many residents found the data confusing or even distressing:

"We've had people say they don't use their smart meter because it's a source of stress... a worry for them."

They emphasised the importance of more user-friendly, visual approaches to presenting energy data—particularly for vulnerable or less digitally confident households.

CONCLUSION

In conclusion, both the quantitative and qualitative findings highlight a wide range of barriers to household participation in both implicit (e.g. ToU tariffs) and explicit (e.g. turn-down events) forms of DSR. Survey responses showed real variation in what discouraged households from switching to a ToU tariff or participating in DSR programmes —no single factor dominated. This suggests that barriers differ across households, indicating that engagement strategies will need to account for diverse household circumstances.

While lack of awareness remains a consistent issue, other key challenges include limited flexibility capital (e.g. technologies or routines that enable load shifting), the perceived complexity of DSR—particularly ToU tariffs—low interest or competing priorities which limit manual engagement, and structural issues such as smart meter access and reliability.

Risk of exclusion and exacerbating inequalities

In its current form, DSR risks excluding segments of the population and reinforcing existing inequalities. Several interviewees pointed to the wider perception of the net zero transition amongst the public, in which there is a feeling that there are winners and losers. In the context of DSR, one interviewee (#12, consumer advocacy group) warned:

"We're going to end up with a two-tier system of people who are really engaged...and people that aren't able to engage or can't purchase low-carbon tech... [They] are going to get left behind ... "

In particular, the upfront costs of LCTs could limit access for certain households. As one interviewee (#20, academic) put it:

"Can you afford a heat pump? Can you afford an electric vehicle? Can you afford a domestic battery? Some of the things that will make a bigger difference to your ability to engage in DSR are simply not accessible to large numbers of people."

In our survey, ownership of LCTs and smart technologies was impacted by demographics:[iv]

- Those living in a studio/flat/apartment were significantly more likely to answer that they had "none of the above" smart technologies (43% compared to the overall average of 33%).
- 35% of those with solar PV and 38% of those with an EV lived in a detached house, where only 18% of respondents answered that they live in a detached house.
- Those who rented from a private landlord were significantly less likely to have an LCT, at 8% compared to the overall result of 15%.

These results are consistent with the recent English Housing Survey;[122] for example, where solar panels were more likely to be present on houses/bungalows compared to flats, and heat pumps were more likely to be found in owner-occupied and social rented dwellings compared with private rented. This highlights the potential socioeconomic inequalities of the adoption of LCTs. While recent research suggests these gaps are narrowing in the UK, targeted policies remain essential to support households from the most disadvantaged backgrounds.[123]

Digital exclusion emerged as a prominent concern. Many DSR schemes rely on real-time engagement via apps or online platforms which require both internet access and a degree of digital literacy. One interviewee (#13, consumer advocacy group) noted:

"If you have a dynamic pricing or an explicit signal that requires you to be on the internet, that's going to be... over a million people who just aren't going to access that."

While digital exclusion was once primarily age-related, it is now increasingly linked to poverty:[124] "People are preferring to pay for energy and water rather than broadband." (Interviewee #13, consumer advocacy group). This intersection of digital and economic exclusion presents a real barrier to equitable participation in DSR.

Furthermore, for some households, participation in DSR may feel less like a choice and more like a financial necessity. This risks creating a sense of compulsion rather than empowerment. As one expert (interviewee #17, academic) observed:

"If somebody can reduce their peak demand by not running their jacuzzi, that's very different to someone who turns the heating down and sits there in the cold."

[iv] Statistically significant where $p<0.001$

Some interviewees warned against encouraging vulnerable households to switch to complex or dynamic tariffs without adequate protections. If expectations around savings are inflated, or if safeguards are weak, these households could be left exposed or at risk.

The survey revealed significant[v] gender differences in awareness of electricity tariffs and DSR, with women consistently reporting lower levels of knowledge than men.

- 35% of women said they did not know what type of electricity tariff they were on, compared to 25% of men.
- 83% had never heard of DSR, compared to 72% of men.
- Among Black, Asian and minority ethnic (BAME) women, 45% did not know what tariff they were on—significantly higher than the overall average of 30%.

Despite this knowledge gap, 28% of BAME women said they were "very likely" to take part, compared to 18% of the rest of the population. This pattern suggests that lower levels of awareness do not stem from a lack of interest, consistent with other research that found that women tend to be more willing to engage in energy conservation and sustainable practices.[125,126] While men report higher technical knowledge about sustainable energy across multiple countries, women are more likely to value its social, environmental, and ethical importance.[127] Our data supports this broader pattern: although women appear less likely to report confidence in energy-related knowledge, they remain just as open to learning about and participating in DSR.

Concerningly, both BAME respondents and women were statistically more likely to be discouraged from participating in an explicit DSR programme because "it's not their decision to make". This highlights a lack of empowerment amongst these groups of people to be involved with DSR. A 2020 study also found that if access to cheaper electricity depends on co-ordinating chores with DSR schedules, lower income households and women may find themselves disadvantaged.[128] It is imperative that if household participation in DSR is expected to increase, this inequality is tackled to decrease its significance. BAME respondents were statistically more likely to list "I am concerned about the unauthorised use of data by the programme operator" as a barrier to participating in explicit DSR. One expert noted that for some people—particularly those who have migrated to the UK—there may be lower levels of trust in institutions delivering flexibility services. This highlights the need for engagement strategies that actively build trust and provide tailored support to communities who may face heightened barriers.

Despite these challenges, it would be a mistake to assume that low-income or marginalised households are uninterested in participating. One expert cautioned "not to generalise fuel-poor households or low income or vulnerable households" (interviewee #13, consumer advocacy group).

The survey data supports this point. Among lower-income respondents:[vi]

- 45% said they would be very or fairly likely to consider participating in a DSR programme—just below the national average of 48%, an insignificant difference.
- 36% expressed interest in switching to a ToU tariff, slightly above the overall average of 32%.

Similar trends were observed among respondents with disabilities and those from BAME backgrounds—suggesting appetite across a broad demographic spectrum, showing that these groups should not be excluded from DSR engagement efforts.

[v] All results statistically significant where $p<0.001$

[iv] Respondents with a household income <£20,000

What drives involvement? Motivations for participation

For those respondents who were likely to switch to a ToU tariff

74% **answered that they wanted to save money on their energy bills**

Financial rewards were the most stated motivator for people to participate in DSR in the survey (Figure 8) (Figure 9), consistent with other studies.[129] For those respondents who were likely to switch to a ToU tariff, 74% answered that they wanted to save money on their energy bills. Similarly, for explicit DSR, the most common motivator selected by respondents was financial incentives (58%) such as lower energy bills or bonuses. This was also highlighted in the interviews, with one interviewee (#9, community energy group) saying:

"The biggest driver for them is still financial... people will need to see a bill saving if they are going to be inconvenienced in any way."

***Figure 8** - "For which of the following reasons, if any, are you likely to switch to a time-of-use electricity tariff? Please select all that apply." (n=436)*

Reasons likely to switch to a ToU tariff

I want to save money on my energy bills	74%	I've heard positive feedback from my friends/family who are on a ToU tariff	8%
I am able to adjust my energy usage to off-peak times	41%	I have installed or am thinking of installing a low-carbon technology through which I can benefit from this type of tariff*	7%
I already have a smart meter	40%	My energy supplier recently informed me about switching	4%
I want to support efforts to reduce carbon emissions	20%	Don't know	3%
I am/was not happy with my current tariff	14%	Other	<1%

* (e.g. an EV charger, a heat pump, a battery etc)

Figure 9 *- "Which of the following factors, if any, would most motivate you to participate in a demand side response programme? Please select up to three." (n=2,095)*

Factors which motivate to participate in DSR programmes

Financial incentives, such as lower energy bills or bonuses	74%	Supporting national energy policy goals	8%
The ability to control and reduce my own energy consumption	41%	None of these	7%
If my energy use was automatically adjusted by my energy provider*	40%	N/A – It is not my decision to make	4%
I'd like to see how much of my electricity use I can adjust	20%	Don't know	3%
Contributing to the reduction of carbon emissions associated with energy supply	15%	Other	<1%
Helping improve the reliability and stability of the electricity grid	14%		

"the key risk is this fact that we're told that flexibility will reduce costs for all consumers; I see no evidence of that."

interviewee #4, industry expert

However, the actual savings available—especially for households without LCTs or limited ability to shift usage—may be relatively modest. Several interviewees cautioned against overstating the benefits, warning that inflated expectations could lead to disappointment and long-term disengagement. As one participant (interviewee #4, industry expert) put it:

"the key risk is this fact that we're told that flexibility will reduce costs for all consumers; I see no evidence of that."

This issue was echoed in feedback from the DFS trial, where some participants felt the rewards were too small to justify the effort required.[130]

*(e.g. my participation was automatic, and I didn't have to actively do anything)

While financial incentives remain a key driver of participation, survey and interview findings point to a wider range of motivations—many of which relate to individual capability, values, and interest. Among those likely to switch to a ToU tariff, three non-financial stated motivators stood out: the ability to adjust electricity use to off-peak times, already having a smart meter, and a desire to support efforts to reduce carbon emissions. The first directly contrasts with the most cited reason among those unlikely to switch: the belief that they would struggle to shift electricity use away from peak times. Taken together, these findings highlight that flexibility capital—the practical ability to change when energy is used—not only acts as a constraint when absent, but also as a key enabler when present. The ability to shift electricity use away from peak times appears to be an important condition for signing up to a ToU tariff, once again pointing to the idea that building flexibility capital among households is key to enabling wider participation in implicit DSR. Similarly, having a smart meter may act as a gateway to flexibility, equipping households with both the tools and confidence to engage—an interpretation supported by previous studies.[131] While environmental concern was selected by a smaller proportion (20%), it nonetheless highlights the role of values in motivating some households.

A similar pattern emerged in responses to the question on explicit DSR. When asked what would encourage participation, respondents most commonly selected factors reflecting a desire for control, automation, and curiosity. The top non-financial motivator—"the ability to control and reduce my own energy consumption" (24%) — suggests the importance of agency and control as a prerequisite for participation. A further 20% said they would be motivated by automatic participation, reinforcing earlier findings around the importance of simplicity and minimal effort. Meanwhile, 16% expressed interest in seeing how much of their usage they could shift—pointing to a more exploratory or learning-based motivation, which could potentially be fostered through feedback tools or gamification. Again, while a smaller share (15%) cited environmental concern, this remains a motivator for a subset of respondents.

Interview findings echoed these points. While most interviewees agreed that financial incentives are an important entry point, many challenged the assumption that households respond purely to cost. One expert (interviewee #4, industry expert) described a price sensitivity experiment:

"We had different cohorts with different price points—£5 per MWh versus £1.50—and it made no difference. Didn't matter what money you gave people—same results."

This suggests that while cost matters, its influence may be overstated, and household responses are not purely price-driven.

A range of non-financial drivers also emerged from the interviews, including:

- Convenience and ease of participation (e.g. low effort, automated)
- Social norms and peer influence (e.g. doing what others are doing)
- Environmental concern
- Interest in smart tech or a general enthusiasm for new technology
- Novelty and gamification

Together, the survey and interview findings point to a more nuanced picture of what motivates household participation in DSR. Effective engagement strategies will need to accommodate this diversity, recognising that different groups may be motivated by different combinations of values, capabilities, and practical considerations.

Enablers of participation in demand side response

Low-carbon technologies critical for enabling flexibility

In the interviews, there was an overall agreement of the significant role that LCTs will play in supporting domestic DSR – especially EVs: "that's...the biggest kind of step to then leading people to look into ToU tariffs as a way of saving money." (Interviewee #12, consumer advocacy group). LCTs open opportunities for avoiding peak times, as one expert (interviewee #1, industry expert) explained:

"If you've got your own onsite generation and battery...it's easier for you to still cook dinner at six rather than having to wait until after seven."

The financial case for DSR is likely to be considerably stronger for LCT owners. A third-party aggregator interviewed in the study explained that they had seen cases where households with a full suite of technologies—heat pump, solar PV, battery, and EV—could earn up to £2,000 in rewards by participating in turn-down events throughout the year. They (interviewee #8, domestic flexibility procurer) explained that, "if you've got those kind of appliances in place, that's where the big uptick in terms of...rewards can actually be earned." In contrast, one interviewee warned that for households without LCTs, switching to a ToU tariff could actually increase their energy bills, as they may be unable to benefit from cheaper off-peak prices while being exposed to higher peak costs. Our research aligns with other studies that LCTs also serve as an important entry point into flexibility. When adopted by choice, one participant (interviewee #17, academic) claimed that,

"These technologies, they empower you, they inform you... if you have an EV, a kilowatt-hour has a totally different meaning to you."

This trend was reflected in our survey findings:

- 28% of those with at least one LCT* were on a ToU tariff, compared to just 8% of respondents without any LCTs.[vii]
- Awareness of DSR was notably higher among respondents with LCTs: 8% said they knew exactly what DSR is (compared to 4% of non-LCT households), and only 65% had never heard of it—versus 80% among those without LCTs.
- LCT owners were significantly more likely to answer that they would be "very likely" to participate in a DSR programme, at 25% compared to the overall result of 18%. This increased to 35% of respondents who had an EV.

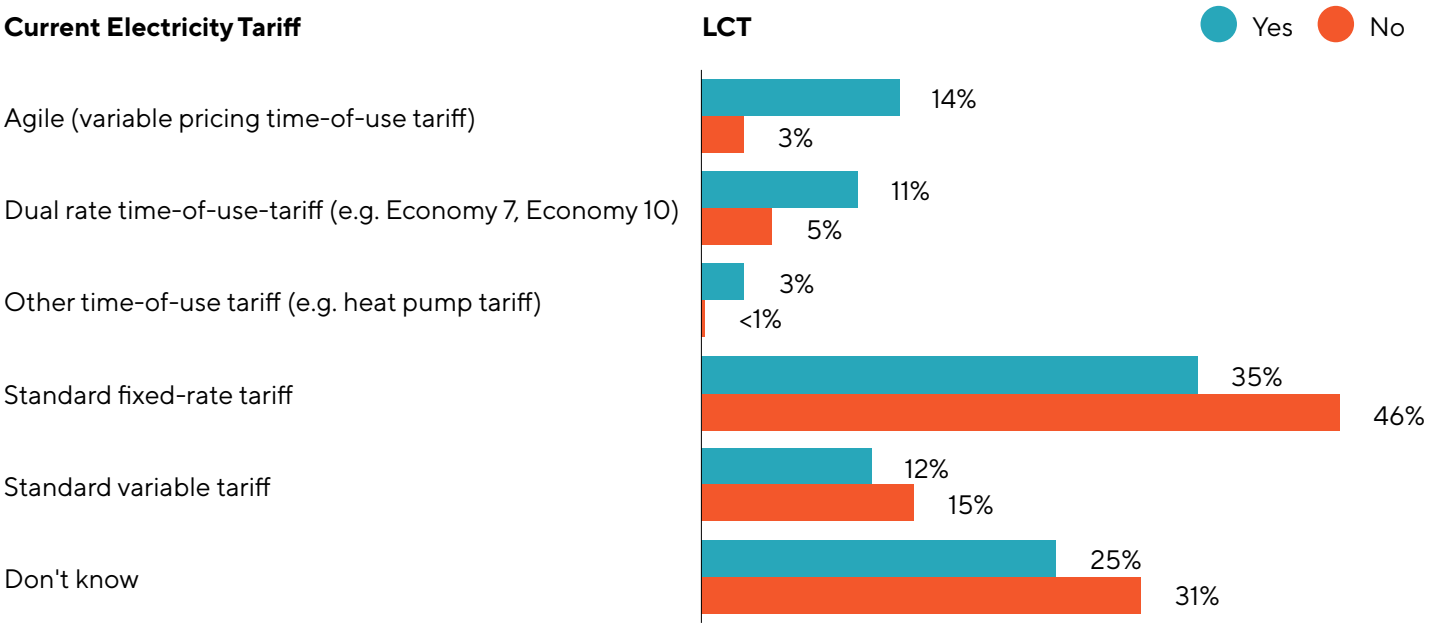
47% **of respondents with an LCT remain on a standard fixed or variable tariff**

However, while engagement was higher among households with LCTs, many are still not on tariffs that would enable them to benefit from flexibility. Almost half (47%) of respondents with an LCT remain on a standard fixed or variable tariff, and 36% with technologies most suited to implicit DSR - batteries, EVs, or thermal storage batteries—were still on standard tariffs (Figure 10). This suggests that significant opportunities to support participation are still being missed, even amongst those households who are likely to benefit from DSR the most.

[vii] Statistically significant where $p<0.001$

*LCTs include: Solar panels, heat pump, solar thermal (hot water heating), EV with charger, home battery, and thermal storage battery

Figure 10 *- Current electricity tariff for those with LCTs (EV, heat pump, thermal storage battery, home battery, solar thermal, solar panels) (n=316) compared to those without LCTs (n=1,779).*



Automation: The challenge of making flexibility 'invisible'

Several interviewees expressed scepticism that manual participation—where people actively shift their usage in response to signals—could be scaled to meet targets. One (interviewee #19, academic) remarked:

"I am quite convinced from everything I know about how difficult it is to engage with households, that manual demand responsibility won't work."

While manual engagement may work in limited cases— for example, for those who are really engaged and tech-savvy, or for those shifting electricity use to nighttime under a dual-rate ToU tariff—it becomes much harder under dynamic tariffs, where prices can change frequently throughout the day. The idea that households will regularly check an app and adjust their energy use accordingly was repeatedly questioned. As noted earlier on in the report, most households have limited interest in engaging deeply with their energy related issues, including actively thinking about when they use electricity.

24% said they would be discouraged to continue participating **"if the programme became too complex or time-consuming."**

In response to the question of what would encourage them to continue participating in a DSR programme, the second most cited factor—selected by 27% of respondents—was "simplicity and ease of participation (e.g. automatic adjustments, minimal effort)". Additionally, 24% said they would be discouraged to continue participating "if the programme became too complex or time-consuming." These findings underline the value households place on ease and simplicity, and suggest the important role of automation in supporting sustained participation.

Our results show that there is potential appetite for automation: one in five respondents (20%) said that a factor that would motivate them to take part in DSR is if their "energy use were automatically adjusted by their provider." However, many interviewees cautioned that while automation has potential, it is not a silver bullet. Realising its full value will require addressing a range of social, technical, and structural challenges over the next decade, as outlined below.

1. Trust and data privacy

Trust in energy companies and technologies emerged as a major concern. Some experts explained that automation could be perceived as intrusive or controlling—'Big Brother' systems reaching into the home to switch appliances on and off. As one interviewee (#10, community energy group) put it:

"Automation is potentially the future behind [domestic DSR]. I think levels of trust in the energy system and energy system actors are a barrier... there's already a lot of conspiracy theorists out there... that think the smart meter rollout is an attempt to control our lives."

Results from the survey suggest that some people are put off by trust concerns: 19% of those unlikely to adopt a ToU tariff in the future said it was because "I don't trust energy suppliers."

2. Control and perceived loss of agency

One expert (interviewee #4, industry expert) noted, "I don't think automation means a loss of agency, but... there is a perception that it definitely can do." Another (interviewee #10, community energy group) reflected that, in their work with social housing tenants, "people don't feel able to control the assets that they have." In this context, without a sense of agency, automation risks reinforcing the feeling that DSR is being done to people rather than with them. This reinforces earlier work, which found that a lack of agency in the transition is prevalent among the UK public.[132] Our survey findings also echoed this concern: the second most cited factor that would motivate participation in DSR programmes—selected by 24% of respondents—was "the ability to control and adjust my own energy consumption." This highlights the importance of designing systems that offer intuitive, meaningful control.[133]

3. Complexity and user confidence

Although automation can reduce effort, interviewees shared examples from trials where users unplugged devices or missed override features, leaving them without hot water or charged EVs. As one expert (interviewee #9, community energy group) summarised, "automation has got a long way to go for people to be super comfortable with it." Even with good functionality, systems can fall short if users aren't empowered to engage with them effectively.[134]

4. Technical, financial, and accessibility barriers

Automation can only function if the right infrastructure is in place, and there are technical, financial and accessibility barriers associated with this. Costs to setting up smart technologies—and ensuring that different systems are maintained effectively—can act as a significant barrier.[135] Even if all the right technology is in place, there is a risk of technical failure, due to Wi-Fi challenges or software glitches, which could undermine trust[136] – especially if redress is slow. Many experts cited the smart meter rollout as an example where technical issues and poor supplier service have resulted in reduced consumer confidence. Worryingly, those unhappy with smart meter installations were nearly two-thirds less likely to adopt smart energy services, including ToU tariffs,[137] highlighting how technical failure can become a social barrier.

Lessons from past engagement

As part of the expert interviews, participants were asked to reflect on the effectiveness of past engagement strategies around DSR, drawing on insights from trials, supplier initiatives, and wider sector experience. While domestic DSR is still relatively new—particularly in the residential sector—some key themes emerged. Although some strategies have shown promise, participants also pointed to several systemic limitations that may undermine the inclusivity, effectiveness, and trustworthiness of domestic DSR initiatives.

What's working?

1. Simplicity in onboarding

One of the clearest success stories mentioned by several interviewees was the sign-up rate to the DFS; 1.6 million households and businesses in its first year. This was described as a major milestone for DSR in the UK, with its success in sign-up attributed to its simplicity: the only eligibility criterion was having a smart meter. One expert (interviewee #1, industry expert) emphasised that this ease of access made DFS a valuable "introductory opportunity" for many people, even if they didn't fully understand the mechanics of flexibility, and as a result was important in raising the profile and concept of DSR.

2. Reminders / participation prompts

Though some experts warned that too high frequency of messages could overload people, early indications from trial results suggests that regular reminders and nudges were effective engagement techniques. According to one interviewee (#9, community energy group):

"...those people that received the text once a day shifted more often than those people that received a text once a week, because they might receive it once a week and say on a Monday... And they might have done something about it on the Monday, may have even done something about it on the Tuesday, but by the end of the week, they will have forgotten it."

Although based on a single trial, these insights suggest that the frequency of messaging could be an important factor to explore further in future programme design.

3. Real-life case studies and storytelling

Storytelling and relatable, real-life case studies were identified as an impactful form of engagement by several interviewees. When households hear about people like them successfully engaging in DSR, the concept feels more tangible and less abstract. One expert (interviewee #10, community energy group) who works for a community energy organisation explained:

"Our membership discussions around carbon have been really impactful... members who have talked about their experience and how they've been able to optimise to match things like the Agile tariff for example."

4. Face-to-face engagement and personalised support

Several experts pointed to the added benefits of face-to-face or personalised support, particularly when engaging harder-to-reach or less digitally confident households. One interviewee (#9, community energy group) explained the difference that face-to-face engagement made in the DSR trial that they were organising:

"We put little postcards through people's doors to join that trial and we sadly didn't get very much response at all from that. So, we held a couple of face-to-face sessions in the local village hall and we got more people that came to it through that."

Another expert (interviewee #11, community energy group) referenced the value of personalised and face-to-face support in a clean heat trial, where a dedicated local coordinator was hired to provide ongoing, personalised support to households involved. While this approach was recognised as resource-intensive and difficult to scale, it was seen as instrumental in fostering trust and sustained engagement.

5. Success of turn-up events

One expert who works for a DNO shared a recent example of a successful turn-up trial. During periods of excess supply, customers were notified in advance that electricity would be free for specific hours the next day. This straightforward offer—"your electricity is free tomorrow between 10am and 1pm"—generated strong uptake. One interviewee who works for a fuel poverty charity highlighted that turn-up events may resonate particularly well with households who are struggling financially—those who ration their energy use or self-disconnect. In these cases, turn-up events could provide a rare opportunity to use electricity more freely without fear of cost, reframing participation in DSR as empowering rather than restrictive.

6. Partnering with known brands and companies

For third-party aggregators that do not have a direct relationship with customers from the beginning, one interviewee (#8, domestic flexibility procurer) explained that "if you're looking to acquire consumers on a direct basis, then you've got to invest a huge amount of money in advertising..." Instead, they found that partnering with established brands has been a successful way of sparking interest in explicit DSR programmes, helping to build confidence and trust in the scheme.

Limitations of current approaches

1. Limitations of top-down engagement

Several interviewees claimed that the commercial framing of DSR risks leading to predominantly top-down engagement. One expert (interviewee #16, academic) warned that:

"People are starting to question narratives around climate change and the urgency of transitioning to cleaner fuels and a large part of this is because this is being done in a top-down way."

This creates a risk of people feeling disempowered, perceiving the transition as something being done to them rather than with them, an issue that has already been evidenced.[138]

2. Lack of feedback and transparency in explicit DSR schemes

In most DSR schemes, households receive confirmation of savings weeks or even months after an event—usually from their energy bills. This makes it difficult to connect actions with outcomes, undermining motivation and learning, according to one interviewee (#17, academic):

"...on the one extreme, you've got energy bills that arrive months after the event, so it's way too late for you to actually know why your bill is high or low... and the other extreme, you've got your in home display that came with your smart meter, which is sort of instantaneous, which is way too fast ..."

Several interviewees highlighted that the lack of visible reinforcement may be detrimental to prolonged engagement, if households struggle to make sense of what constitutes a 'successful' response. In addition, another expert (interviewee #2, industry expert) criticised the technical nature of pricing mechanisms—such as kilowatt-hour-based payments— which they believe is inaccessible to many people:

"People are paid in... pounds per kWh and that's not really understood... it's not simple for the consumer. They don't really know how much they're going to make."

3. Difficulty engaging diverse households

Interviewees raised concerns about the tendency for energy suppliers to adopt a one-size-fits-all approach to marketing and communication. This overlooks the wide variation in household needs and preferences. This is exacerbated by the fact that often highly engaged, environmentally motivated households are overrepresented in research and pilot schemes, while many others remain excluded (interviewee #17, academic): "We're slightly blinkered by what these groups are willing and able to do." One interviewee (#8, domestic flexibility procurer) who works for a third-party aggregator described how off-the-shelf DSR products failed in a trial with vulnerable households because they were designed for a mass-market consumer and didn't account for the unique barriers that these households faced. "They couldn't cope with it—it meant they gave up and were excluded from the process entirely." Following this experience, the organisation shifted to co-designing tailored solutions based on direct engagement with those users, which proved to be more successful.

4. Alternate framings

One expert (interviewee #20, academic) criticised the dominance of economic framing in current approaches:

"In the academic literature what gets called a kind of very rational choice type framing [is] that all that really matters is...what something costs...the evidence suggests that they have relatively limited effectiveness."

They referred the long-standing body of research showing that people are not always economically rational in their energy behaviours. Instead, decisions are shaped by cognitive biases, routines, social influences, and emotional drivers.[139]

Roles and responsibilities

While many interviewees acknowledged that energy suppliers and aggregators have a clear commercial interest in promoting DSR—particularly where they can derive financial value from participation—there were concerns that relying solely on these actors would be insufficient, inequitable, or ineffective.

The role of commercial entities

Some interviewees argued that energy suppliers and third-party aggregators are well-positioned to lead on engagement, given their commercial incentive to invest in outreach and product development. As one expert (interviewee #2, industry expert) put it, "it's up to energy suppliers and aggregators to offer the right types of products—if this is the case, then people will be interested." Energy suppliers also maintain direct relationships with customers, enabling them to promote DSR opportunities.

However, public confidence in the energy sector more broadly remains low,[140] particularly in the wake of the energy crisis. One interviewee (#17, academic) noted that although energy suppliers currently lead most consumer engagement efforts around DSR:

"They are not necessarily in the best position... because people will be suspicious that they're not doing it for the greater good, but for the profits of a utility company."

In addition to trust issues, inconsistent levels of ambition among suppliers to engage households in DSR could lead to uneven access to opportunities. Some might invest in innovative products and outreach, while others may not, leaving their customers at a disadvantage. One expert (interviewee #13, consumer advocacy group) explained:

"Where you have an energy supplier who is really committed to it, I think you'll get much greater levels of awareness....it will probably be wildly different between energy suppliers and their customers as to how engaged people are."

Furthermore, commercially motivated engagement could prioritise easy-to-access customers, failing to carry out the type of thorough engagement strategies that are necessary for the harder-to-reach communities. The same interviewee (#13, consumer advocacy group) said:

"...it doesn't matter to [an energy supplier] whether their least affluent customers provided DSR or their most affluent customer. So, therefore it's almost a social policy thing to engage all different types of households. So, you will need either a governmental or a regulatory intervention to be able to achieve that. "

Many interviewees emphasised the importance of a broader coalition of actors, "multiple partners and multiple organisations" (interviewee #12, consumer advocacy group). NGOs and independent advice organisations like Citizens Advice were frequently mentioned as trusted intermediaries with experience in supporting consumers, particularly those who are vulnerable or excluded. One interviewee (#16, academic) maintained, "the advisors... like your local Citizens Advice... they're a very important part of the puzzle." These groups are often seen as credible and trusted because they are not selling anything and can provide independent, personalised, practical advice: "People need advice that isn't coming from someone trying to sell them something," according to one interviewee (#4, industry expert).

Local engagement

Requirements from a grid perspective may vary considerably depending on the location and constraints context at a distribution level. As energy suppliers operate nationally, households in the same neighbourhood may be served by different providers, potentially undermining area-based coordination. Some suggested a greater role for DNOs, who have local visibility on constraints. One interviewee (#6, domestic flexibility procurer) who works for a DNO agreed:

"I think we do [have a role], because we serve all the customers in our area, so you can get a large platform to speak to customers."

However, it was noted that DNOs do not typically have a direct consumer-facing role, and therefore, if they were to take a more proactive role moving forward, this should be in partnership with trusted local actors. Community groups in particular were identified as a good stakeholder, as they tend to command greater trust in the local area.

"the role of partnership working with community groups and charities—you can't really overstate that..."

interviewee #13, consumer energy group

As one participant (interviewee #13, consumer energy group) put it: "the role of partnership working with community groups and charities—you can't really overstate that..." Local government were also considered as playing a role, especially in coordinating engagement and reaching vulnerable communities. They serve as a key bridge between national energy goals and on-the-ground delivery and are well-placed to understand the priorities of their communities.[141]

The role of LCT installers

As noted previously, the installation of LCTs often serves as a household's entry point into DSR. Installers of these technologies were considered a key stakeholder, due to the direct relationship they have with households. However, this does not necessarily mean they are promoting flexible operation. For example, heat pumps have the potential to provide significant flexibility in the future energy system, and yet one expert (interviewee #4, industry expert) described that:

"We see that all the time with heat pumps. It's like, 'Oh, heat pumps will be operated flexibly,' and then you look at what installers say to people and they're like, 'Please don't operate your heat pump flexibly. It needs to be on all the time at a steady temperature and shouldn't be used in demand response.'"

Another expert (interviewee #8, domestic flexibility procurer) argued that energy suppliers or third-party aggregators should provide incentives for installers to promote flexibility, noting that many installers show little interest "unless there's a monetary value in it." Given their direct contact with households at key decision points, targeted training and appropriate incentives could enhance their ability to act as intermediaries—ensuring they are equipped and motivated to communicate the benefits of flexibility effectively.

The role of national government and Ofgem

There was widespread agreement amongst experts that national government has a crucial strategic role to play—particularly in raising public awareness of DSR and funding local and regional engagement efforts. Several interviewees also highlighted the potential role of an arm's-length body, such as Smart Energy GB or NESO, in coordinating national awareness campaigns and engagement strategies.

In addition, some interviewees highlighted the role that Ofgem has to play in ensuring that consumer protections are robust and that innovation can take place in the sector. Furthermore, several interviews noted that Ofgem has a role in ensuring that engagement is equitable, reaching all types of households. For example, one interviewee (#4, industry expert) suggested:

"There needs to be tighter regulations and frameworks to make sure that demand response is delivering system value...it can't just be an economic thing for suppliers to work with high income consumers and generate profit for the supplier and the consumer, and not for the system. In doing that, that makes it easier for all different types of consumers to engage."

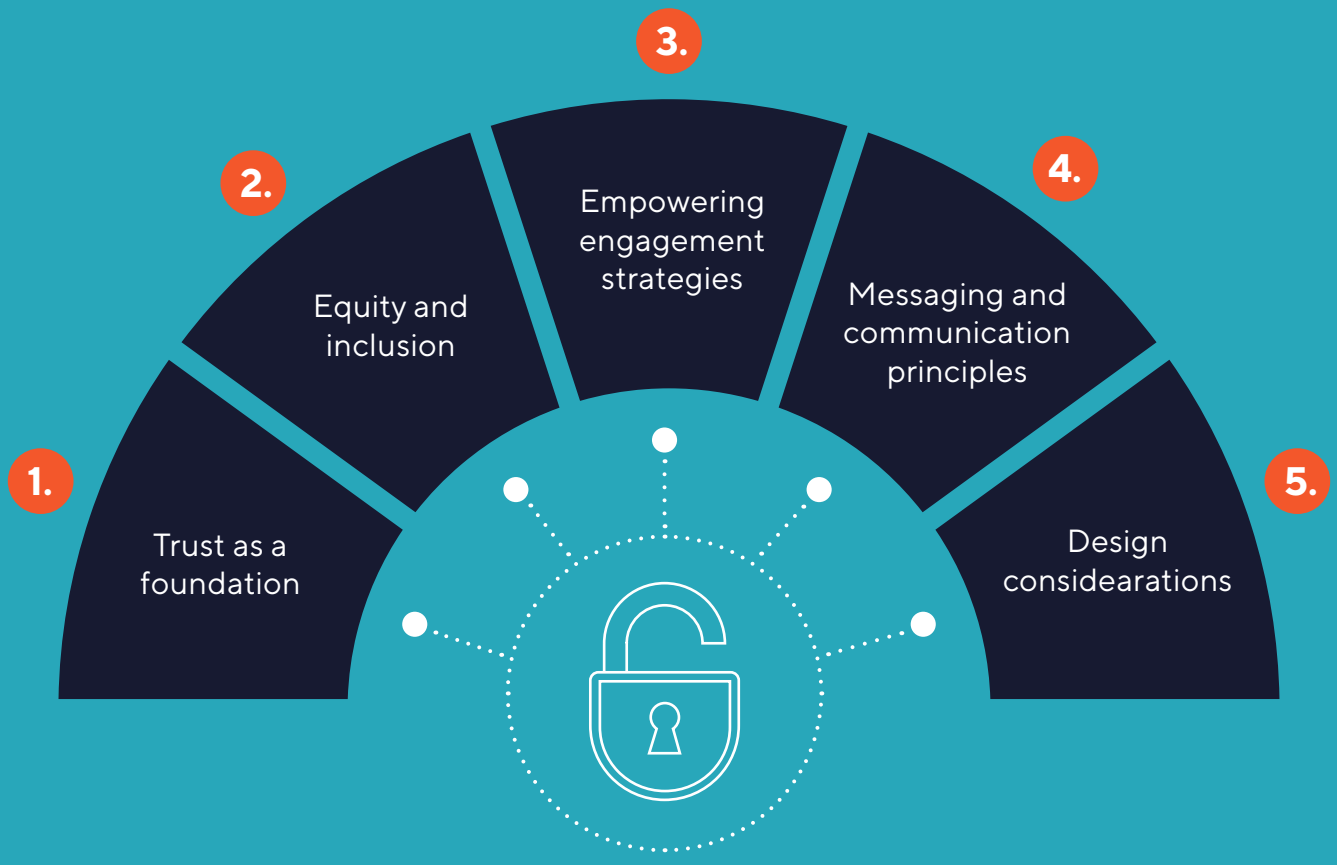
Given the range of actors involved, a coordinating body may be needed to ensure alignment and avoid duplication. Without this, engagement efforts risk being fragmented, inconsistent, and ultimately less effective.

How can we unlock domestic demand side response moving forward?

A FRAMEWORK FOR HOUSEHOLD ENGAGEMENT

This research strongly indicates that effectively engaging households in DSR requires a systemic, thoughtful approach that meets people where they are.

Drawing on the expert interviews and survey findings, this framework outlines five key pillars for meaningful and inclusive engagement that can support the shift to a more flexible, low-carbon energy system.



1. Trust as the foundation

Trust emerged as a foundational requirement across this research—underpinning engagement, programme design, and communication. This is particularly important for unlocking the potential of automation and ensuring households feel confident using new systems, especially in the current context where trust in the energy system remains lower than pre-energy crisis levels. Several interviewees stressed the importance of clear, enforceable consumer protections. This includes robust regulation by Ofgem, transparent redress mechanisms, and clear standards around privacy and service expectations. As one contributor (interviewee #12, consumer advocacy group) put it: "Consumers need to know that when things go wrong, there's a place they can go for redress."

Beyond formal protections, trust is also shaped by social norms and interpersonal influence. People often turn to friends, neighbours, or tradespeople for advice—placing greater weight on lived experiences than official campaigns or technical detail.[142,143] As one expert (interviewee #12, consumer advocacy group) noted: "Word of mouth makes such a big difference...". But one expert (interviewee #14, consumer advocacy group) also warned that trust is fragile — "It only takes one or two bad stories and you get bad press and then the perception is formed by those few stories." This underlines the importance of providing good customer service and support at every stage, ensuring households feel confident, informed, and treated fairly.

RECOMMENDATIONS

- Clear, timely communication and high-quality customer service from suppliers and third-party aggregators—including transparency around price changes, data use, and technical issues, as well as fast resolution of problems and proactive updates.
- Ofgem must ensure that robust consumer protections are in place, including a clear redress process, so people know where to go if something goes wrong.
- Ofgem should continue work on the Consumer Consent Solution to ensure that consent frameworks are in place for data sharing and use.

2. Equity and inclusion

If programmes are designed without careful attention to the diverse needs, preferences, and constraints of households, there is a risk that DSR will disproportionately benefit a narrow segment of the population—potentially exacerbating existing inequalities. To avoid this, engagement strategies must aim to bring everyone along—not just the most convenient or commercially attractive households.

Regulation has a critical role to play in shaping this fairness. One participant (interviewee #16, academic) argued that Ofgem's current approach—relying heavily on financial penalties—can unintentionally undermine meaningful engagement from energy suppliers. Reflecting on the smart meter rollout, they pointed out that suppliers were penalised for failing to reach enough households, which pushed them to prioritise the numbers over quality:

"They're going to focus a lot on the number... but they're not going to care about how—and the how is actually more important."

This, they argued, leads to superficial engagement driven by profit and compliance, rather than inclusive, thoughtful design. Instead, they urged regulators to "get serious about inclusion and justice and accessibility," reframing engagement not as a tick-box exercise, but as a core pillar of system change. This perspective aligns with findings from a recent Nesta report, which similarly observed that supplier engagement efforts around smart meters often centred on meeting rollout targets rather than delivering meaningful, user-focused support.[144]

Interviewees also emphasised that enabling technologies—such as heat pumps, solar panels, and home batteries—are key to building flexibility capital among households. One expert (interviewee #7, domestic flexibility procurer) argued that:

"Government's role should be to remove the barriers... prioritising those on the lowest net income who need the most help with bills, to get the assets that they otherwise wouldn't be able to afford into those homes."

Government schemes have made promising progress in LCT installations in low-income households; for example, the Energy Company Obligation 4 (ECO4) scheme which provides energy efficiency measures for low-income households has supported over 32,000 heat pumps installs compared to under 800 installs under the previous iteration ECO3.[145,146] The Warm Homes Plan – the UK government initiative aimed at transforming home heating and improving energy efficiency - has already committed £500 million between 2025-28 to local schemes to support low-income households.[147] However, continued investment in schemes like ECO, and targeted support for flexibility-enabling technologies such as batteries, will be essential to ensuring that the benefits of DSR are distributed fairly and inclusively.

Fairness also means recognising that not everyone can participate in DSR. Some households may be constrained by health conditions, rigid work schedules, or unsuitable housing. These people must not be penalised as the system evolves. As one interviewee (#13, consumer advocacy group) put it:

"You need to make sure that people's hierarchy of needs [are met] before you engage them on anything else."

Ensuring energy bills are affordable and that adequate support is in place for those who are struggling to heat their homes must form the foundation of any future system.

RECOMMENDATIONS

- Reform Ofgem's regulatory approach, so that suppliers and aggregators are judged not just by how many households they reach, but by how they engage them. Meaningful, inclusive engagement should be incentivised—not just quick wins.
- Mandate electricity supplier obligations to reach underserved groups, especially those in fuel poverty or digitally excluded, as part of a regulatory framework for just and inclusive DSR.
- As part of the Warm Homes Plan, Government should ensure that a significant proportion of the £13.2 billion funding supports low-income households to access LCTs, including batteries and heat pumps.
- Protect households unable to participate in DSR by committing to reducing energy bills for everyone, including through shifting policy costs currently levied on electricity bills into general taxation.

3. Empowering engagement strategies

While this framework focuses on household engagement with DSR, engagement strategies also emerged as a principle in its own right—specifically, the importance of designing approaches that empower people to take part, rather than simply informing them. This section outlines what empowering engagement looks like in practice.

Targeted engagement

Households' motivations, capacities, and circumstances vary—meaning engagement must be designed with specific audiences in mind. Several experts warned against a one-size-fits-all approach, as (interviewee #16, academic) said, "to expect a homogeneous response to participation in DSR is futile...". Instead, several people emphasised importance of a targeted approach, understanding people's starting points and designing outreach accordingly.

RECOMMENDATIONS

- Design engagement strategies that reflect the diversity of motivations, barriers, and communication preferences across households.
- Use robust data and research to understand household needs and preferences, as well as how to target them.

Trusted and relational engagement

The role of relationships and social networks in driving engagement was raised on several occasions. Relational trust is built through ongoing, personal relationships, rather than through formal roles or institutional authority.[148] It is developed when people feel that those who are engaging them understand their needs, share their values, and act in their best interests. One interviewee (#20, academic) explained that without this underlying relationship, efforts to promote DSR can feel impersonal and directive:

"There's a sense of, we'll tell you what to do and you either do it or you don't. And that's not a good basis for a relationship... it's a very didactic type thing and that's not how you end up with trust and that's not how you get goodwill."

Further, one participant (interviewee #16, academic) explained: "Who is delivering this information is very important." People are more likely to respond when messages come from sources they recognise, relate to, or regularly interact with—whether that's a local community group, a trusted institution, or a peer.

RECOMMENDATIONS

- Flexibility procurers (energy suppliers, third-party aggregators, DNOs) should work alongside trusted messengers to engage households—e.g. local community organisations and anchor institutions (such as schools), LCT installers, independent consumer groups, or known, trusted brands.
- Use peer ambassadors or case studies that reflect people's own lives and situations.
- Focus on building relationships over time—not just one-off transactions.

Participatory, face-to-face engagement

Several experts pointed to the benefits of in-person, interactive engagement to help build trust in new services and concepts, where people can ask questions, voice concerns, and feel heard.

RECOMMENDATIONS

- Flexibility procurers should fund trusted local intermediaries—such as community organisations, energy advisors, or local authorities—to organise in-person events, drop-ins, or local workshops to give households the opportunity to ask questions and speak with independent advisors.

Clear and personalised advice

Several interviews highlighted that most people feel overwhelmed by energy decisions, especially when faced with jargon, unclear pricing structures, and a wide array of poorly explained options. Whilst general advice, accessed via comparison websites or through energy supplier websites is an essential first step, there was strong consensus that households should have access to personalised, independent advice, made more relevant through the use of household-level data.

RECOMMENDATIONS

- Update Price Comparison Websites (PCW) to include ToU tariffs and allow easy side-by-side comparisons. This could be achieved through amendments to the Ofgem Confidence Code which regulates accredited PCWs which require them to display ToU tariffs in a comparable way, e.g. through estimated usage profiles or interactive tools.
- Government should fund independent local consumer groups and charities to offer tailored advice based on a household's technologies, lifestyle, and energy profile.
- Energy suppliers should offer a risk-free trial period for ToU tariffs, enabling households to explore potential savings without financial disadvantage. If the trial results in higher costs, suppliers should guarantee to match the household's previous month's bill, ensuring households are not penalised for participating.

Timely and opportunistic engagement

One interviewee (#2, industry expert) emphasised the importance of "identifying... critical points in what people would say is the customer journey." This research identified key moments—such as installing LCTs or undertaking wider home energy upgrades—as ideal opportunities to begin conversations about flexibility. One participant (interviewee #13, consumer advocacy group) warned, if these moments are missed, "you won't get the chance to engage them again... we have to do it all in one." Use key trigger points—such as the installation of EVs, solar panels, or heat pumps—as opportunities to engage consumers on flexibility. Flexibility providers should look to collaborate with installers and incentivise them to provide information at these moments.

RECOMMENDATIONS

- Adopt a more joined-up approach to energy advice: Government should integrate flexibility messaging into wider energy touchpoints—such as during home upgrades, retrofit assessments, or supplier onboarding. This includes establishing a National Advice Service in England, with advisors trained to support households on both energy upgrades and flexible energy use.
- Energy suppliers should proactively offer appropriate ToU tariffs to customers with LCTs, ensuring they benefit from their assets and are supported to participate in flexibility.
- Energy suppliers and third-party aggregators should work alongside LCT installers to help raise awareness of flexibility opportunities amongst those households who may be most suitable.

4. Messaging and communication principles

Effective communication in DSR relies on clarity, consistency, and resonance. Messaging must be strategic, understandable, and inclusive—showing people what they stand to gain without overwhelming them with jargon or complexity.

Consistency is key

In a landscape involving multiple actors, consistency in communication is essential. When households receive conflicting messages from different sources, it can create confusion and fuel misinformation. This has already been seen in the case of heat pumps, where mixed messages around performance and operation have weakened public confidence. This research shows that although public awareness of DSR is low, many UK adults are interested in learning more. National government has a vital strategic role to play in coordinating consistent messaging, as well as raising awareness through a national campaign. As one expert (interviewee #4, industry expert) put it, "There needs to be much stronger messaging from central government."

RECOMMENDATIONS

- Include the concept of DSR as a key element in the Government's national awareness campaign under the Warm Homes Plan.
- Broaden the remit of Smart Energy GB beyond smart meter adoption, enabling them to play a wider role in raising awareness of flexibility and supporting public understanding.
- Standardise key concepts, language, and metrics across industry actors to ensure clarity and consistency in messaging, making it easier for households to understand and engage with flexibility.

Benefit-driven and simple communication

Several interviewees emphasised that messaging should be simple, using relatable, everyday examples. It should also focus on the benefit to households and why it matters to them personally, including what people stand to gain, rather than framing it around what they could lose. As one expert (#9, community energy group) put it:

"The messaging has got to be really simple, it's got to be really clear, and the benefits have got to be tangible— [with] examples as well."

Messaging should also communicate why it matters—framing it within the wider transition to a fairer, more sustainable energy system. This helps build a sense of collective purpose and shared responsibility.[149] As one interviewee (#10, community energy group) put it, "We need better engagement as to the why and the significance of taking action." Another expert (interviewee #20, academic) emphasised the importance of this wider framing:

"It's about telling a story and creating a kind of community—a set of relationships around the value and benefits of DSR, and the many active, different, diverse roles that people might play in a net zero energy system."

RECOMMENDATIONS

- Use clear, relatable language and avoid jargon.
- Break flexibility down into simple, tangible actions so that it's easy to understand.
- Highlight co-benefits: environmental impact, system resilience, energy security.

Inclusive and multi-channel communication

To be effective, communication must be inclusive, reflecting the diversity of household situations, values, and lived experiences. As one expert (#4, industry expert) noted, we need "messaging that resonates with different types of demographics, tenure and income." This means tailoring content to speak to different priorities, whether that's saving money, improving comfort, or contributing to climate action. No single message or channel will reach everyone. A mix of formats—texts, emails, social media, adverts, printed materials, and in-person events—is essential to reach households in ways that feel relevant and accessible to them.

RECOMMENDATIONS

- Include narratives that reflect different home types, technologies, and demographics.
- Use multiple channels to reinforce the message.

5. Design considerations

User-centred design

Many interviewees pointed to the value of user-centred design, which is an approach that prioritises the needs, preferences, and behaviours of the end user throughout every stage of the design process.[150] As one interviewee (#11, community energy group) put it: "The more you can involve somebody who's your customer in designing the product, the more you're going to build trust."

One expert interviewee (#17, academic) criticised the rollout of smart meters as a clear example of poor user-centred design:

"We've rolled them out at huge public expense—but all the benefits go to the utility... But why should I, as the customer, benefit? That's not at all obvious. There's the in-home display, which is a nice little gimmick, and this nebulous claim that it magically saves me money—but no one can quite say how. Even accessing your smart meter data is difficult. It's all geared to suit the utilities, not the user."

They went on to suggest that if smart meters had been presented in a way that offered genuine, tangible benefits to the household—such as easily accessing and using their own energy data—the rollout may have seen greater public acceptance.

RECOMMENDATIONS

- Energy suppliers and third-party aggregators should co-design DSR products and services, directly involving households during development.

Innovative and meaningful rewards

Several interviewees emphasised the need to test different reward structures to understand what resonates most with households. Experts suggested that incentives must feel appealing, fair, and personally relevant—going beyond simply offering a few pence per kilowatt-hour saved. As one interviewee (#2, industry expert) noted, "They need a simpler kind of payment rather than pounds per kWh." For some households, a flat-rate reward based on participation may be more motivating and easier to understand. However, this approach could risk dampening efforts to reduce more energy and may need to be balanced to remain competitive for DSR procurers.

RECOMMENDATIONS

- Test a range of incentive models (e.g. flat-rate participation bonuses vs. per-kWh savings) to understand which approaches households find most engaging, while also ensuring alignment with broader system-benefit objectives.

Simplicity and accessibility

Making DSR simple and accessible was a common theme across interviews. Households are more likely to engage when processes are intuitive, easy to follow, and don't require excessive effort or technical know-how. One interviewee (#14, consumer advocacy group) suggested that we need to "make it all much simpler for the householder and that could really encourage adoption." For many, accessibility also means ensuring that DSR is open to all households, including those with lower digital literacy or additional support needs.

RECOMMENDATIONS

- Keep the process straightforward—offer easy sign-up, plain language instructions, and clear calls to action.
- Design platforms and materials with accessibility in mind, ensuring usability for all households, including those who may be digitally excluded.

Prompt and transparent feedback for explicit DSR programmes

Timely and actionable feedback is essential for helping households understand the impact of their actions. Several interviewees stressed that without clear, real-time insights, people may struggle to link specific behaviours—like shifting appliance use—to actual outcomes. Waiting for a monthly bill is too delayed to draw meaningful connections, while smart meter readings are too instantaneous to fully understand. If people can't see what worked, they may not be able to learn or adjust accordingly.

RECOMMENDATIONS

- Enable quick feedback loops—for example, app notifications or emails to communicate savings soon after a DSR event so the connection between action and outcome is clear for households.
- Use personalised comparisons (e.g., "You saved more than last time" or "You were in the top 10% of savers today") for DSR programmes.

Increase the number of implicit and explicit DSR offers

While there is a growing number of products currently on the market, they are not equally accessible or relevant to all. As one interviewee (#3, industry expert) put it, "there aren't products and services out there that will work for everyone at the moment."

To build an inclusive and effective DSR ecosystem, there must be a diverse range of options tailored to different household needs. This includes varying ToU tariffs that account for different routines and risk preferences, as well as programme designs that suit both low-tech and highly connected homes. Several interviewees emphasised the importance of regulatory action in shaping a fairer and more inclusive energy retail market. As one expert (interviewee #2, industry expert) put it, regulators and government should "focus more on... creating those [market] conditions" — including fair competition, reduced incumbency bias, and support for suppliers and aggregators to develop diverse, user-friendly DSR products and tariffs.

RECOMMENDATIONS

- Third-party aggregators and energy suppliers should diversify both implicit and explicit DSR services and products to reflect different living situations, preferences, and capabilities—not a single standardised model.
- Introduce changes to the retail market that lower entry barriers, reduce compliance complexity for innovators, and create space for experimentation with new services and business models.

Concluding remarks and recommendations

Enabling flexible energy use in households is essential to meeting the UK's net zero targets.

If implemented at scale, it could reduce household energy bills by up to £375, avoid the need for new gas-fired generation, and minimise costly network upgrades—delivering estimated system savings of £14.1 billion by 2040.[151] It plays a central role in NESO's Future Energy Scenarios, underpinning a secure, affordable, and flexible energy future.

However, realising this potential depends on household participation—whether that means signing up to an explicit DSR programme or ToU tariff, installing enabling technologies, or consenting to automation. Yet previous research from The MCS Foundation found that many people feel excluded from the energy transition, with limited agency, low trust and scepticism about meeting net zero targets. Within this context, building trust, addressing scepticism, and engaging people meaningfully are central to unlocking domestic flexibility. This study used a UK-representative survey and expert interviews to explore public awareness, current participation levels, and the key barriers and motivations shaping uptake. It also put forward a strategic framework for improving engagement, aimed at accelerating progress towards the UK's domestic flexibility targets.

Findings suggest that domestic DSR—both implicit and explicit—remains at an early stage of public uptake. Just 11% of respondents reported being on a ToU tariff, and over three quarters had never heard of DSR, even when given a simple definition. However, there are signs of public interest. Over half (53%) of respondents said they were interested in receiving information about DSR programmes, and nearly half (48%) said they would be likely to consider participating in one in future. A further 28% of those currently on standard tariffs said they were likely to switch to a ToU tariff. Together, these results suggest there may be a meaningful opportunity to grow participation, particularly if awareness improves.

However, both the survey and expert interviews highlighted a range of barriers that could limit meaningful household involvement. From the survey, common reasons for not participating included the effort required to shift energy use, doubts about potential savings, a preference not to think about energy use, perceived disruption to daily routines, and satisfaction with existing tariffs or suppliers. The expert interviews pointed to additional challenges, including the complexity of navigating tariff options, limited flexibility capital among some households, and issues with smart meter access.

Our results show that financial incentives remain the most cited motivator for DSR participation— even though financial savings may be modest for many households. However, non-financial drivers also play a role, including ease of participation, environmental concern, and social norms. Effective engagement strategies will need to reflect this range of motivations, while recognising that cost savings are likely to remain central for most households.

LCTs—particularly EVs, batteries, solar PV, and heat pumps—were consistently identified as critical enablers of flexibility. They increase household demand, create more opportunities for load-shifting, and significantly improve the financial case for DSR participation. The survey confirmed this link: LCT owners were more likely to be on ToU tariffs, to have heard of DSR, and to say they were likely to participate.

Automation also emerged as a key enabler to scaling domestic DSR. Most interviewees were sceptical that manual participation could be widely sustained, and survey results supported this: "simplicity and ease of participation (e.g. automatic adjustments, minimal effort required)" was the second most selected factor that would encourage continued participation in a DSR programme. Nonetheless, several challenges must be addressed to ensure automation can be scaled particularly concerns around trust, perceived loss of control and technical failure.

While DSR offers clear benefits for the wider energy system, this research highlights a critical equity challenge. Implicit and explicit DSR could disproportionately benefit some households, while leaving others behind. Digital exclusion—driven increasingly by poverty rather than age—limits the ability of some households to participate in app-based or online DSR programmes. For households under financial pressure, DSR may feel like a necessity rather than a choice, with the risk that efforts to reduce bills come at the expense of comfort or wellbeing. Structural disparities were also evident in the survey findings: women—particularly those from Black, Asian, and minority ethnic backgrounds—were less likely to report confidence in understanding DSR or energy tariffs, and more likely to feel excluded from decision-making within the home, despite showing a strong willingness to participate.

Furthermore, access to LCTs remains unevenly distributed. Survey results showed that respondents living in detached homes were statistically more likely to have technologies like like EVs and solar panels. In contrast, renters and those living in flats were less likely to own the appliances needed to fully benefit from DSR opportunities. Experts highlighted that high upfront costs remain a key barrier to adoption for many households. Without targeted intervention, this imbalance risks reinforcing existing inequalities, creating a two-tier system in which flexibility capital, and its associated benefits, are concentrated among a small proportion of households.

This research points to the need for a broad collation of stakeholders to engage households. While energy suppliers and third-party aggregators have incentives to develop and promote DSR products, concerns remain around trust, uneven ambition, and the risk of overlooking harder-to-reach households. Insights from this research suggest that local coordination of DSR—potentially led by DNOs or local authorities—may be most effective when delivered in partnership with trusted intermediaries such as consumer groups (e.g. Citizens Advice) and community organisations. Finally, national government and Ofgem have a vital role in setting the strategic direction, coordinating engagement, and ensuring equitable access.

Past engagement efforts offer some valuable lessons. Experts highlighted the importance of simple opt-ins, timely reminders, relatable case studies, and in-person support. However, many current approaches remain too top-down, overly technical, and poorly tailored to diverse needs. A lack of real-time feedback and meaningful communication risks disengaging participants, while economic framings alone often miss the emotional and social dimensions that could motivate participation for some households.

Based on the findings of this study, a more inclusive and effective DSR engagement strategy should be built around five key pillars:

1. Trust

Engagement must be grounded in clear consumer protections and good customer service. Trust is fragile and hard-won—people need to feel confident that they're being treated fairly and have recourse if things go wrong.

2. Equity and inclusion

DSR must be accessible to all—not just the most digitally savvy or financially secure. That means tailored engagement, targeted support for low-income households to access enabling technologies, and protections for those unable to participate.

3. Empowering engagement strategies

One-size-fits-all approaches don't work. Households need tailored, empowering engagement—delivered through trusted messengers, timely advice, and face-to-face support—especially at key decision points like LCT installation.

4. Messaging and communication

Communication should be clear, benefit-focused, and consistent across all actors. Messaging must reflect people's diverse values and priorities, avoiding jargon and making the benefits of DSR feel tangible and personally relevant.

5. User-centred design

DSR products and services must be simple, intuitive, and co-designed with users. Incentives should be easy to understand, feedback must be timely and visible, and a range of DSR options should be available to suit different household needs.

With strong coordination across government, regulators, industry, and civil society, it is possible to build a trusted and inclusive DSR ecosystem—one that empowers households to play an active role in the transition to a more flexible, equitable, and low-carbon energy system.

Under these key pillars, we make the following recommendations for key stakeholders:

Suppliers and third-party aggregators

- Build trust with households through clear, timely communication and high-quality customer service – including transparency around price changes, data use, and technical issues, as well as fast resolution of problems and proactive updates.
- Offer a risk-free trial period for ToU tariffs, enabling households to explore potential savings without financial disadvantage.
- Co-design DSR products and services, directly involving households during development.
- Diversify both implicit and explicit DSR services and products to reflect different living situations, preferences, and capabilities—not a single standardised model.
- Enable quick feedback loops—for example, app notifications or emails to communicate savings soon after a DSR event so the connection between action and outcome is clear for households.

Ofgem

- Ensure that robust consumer protections are in place, including a clear redress process, so people know where to go if something goes wrong.
- Mandate electricity supplier obligations to reach underserved groups, especially those in fuel poverty or digitally excluded, as part of a regulatory framework for just and inclusive DSR.
- Update price comparison tools to include ToU tariffs and allow easy side-by-side comparisons. This could be achieved through updating the Ofgem Confidence Code to require accredited Price Comparison Websites to display ToU tariffs in a comparable way.
- Introduce changes to the retail market that lower entry barriers, reduce compliance complexity for innovators, and create space for experimentation with new services and business models.

Government

- Ensure that a significant proportion of the £13.2 billion Warm Homes Plan funding supports low-income households to access LCTs, including batteries and heat pumps.
- Protect households unable to participate in DSR by committing to reducing energy bills for everyone, including through shifting policy costs currently levied on electricity bills into general taxation.
- Adopt a more joined-up approach to energy advice: integrate flexibility messaging into wider energy touchpoints—such as during home energy upgrades. This includes establishing a National Advice Service in England, with advisors trained to support households on both energy upgrades and flexible energy use.
- Include the concept of DSR as a key element in the national awareness campaign under the Warm Homes Plan.
- Broaden the remit of Smart Energy GB beyond smart meter adoption, enabling them to play a wider role in raising awareness of flexibility and supporting public understanding.

DNOs

- Work alongside local trusted messengers to engage households—e.g. local community organisations and anchor institutions (such as schools), LCT installers, independent consumer groups, or known, trusted brands.

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