



citizens
advice

Understanding high and low electricity usage

Summary of engagement report

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Author(s)	James Wickett-Whyte, Alexa Waud, Jane Simon, Louis Horsley, Eden Foley
Quality Assurance by	Olivier Boelman
Main point of contact	James Wickett-Whyte
Telephone	07904731684
Email	james.wickett-whyte@traverse.ltd

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t. 0207 239 7800 p. 2 Angel Square, London, EC1V 1NY
e. info@traverse.ltd w. www.traverse.ltd





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1. Background to the research

Citizens Advice is working to ensure views from consumers of all types are taken into account and potentially protected in Ofgem's Network Access and Forward-Looking Charges Significant Code Review.

In 2019, Citizens Advice identified a basic core capacity¹ (capacity that cannot readily be flexed and provides for basic consumer needs) of 2-3kW per household. Following this piece of work, Citizens Advice commissioned Traverse to investigate what could drive electricity usage below this level, as well as examples of, and drivers behind, very high electricity usage and very low electricity usage.

The project:

- tested the hypothesis that low income consumers are using less energy (electricity) than is necessary for a basic standard of living; and
- examined the reasons for some consumers using significantly more capacity than average.

Additionally, the research sought to gather deeper understanding of the following research questions:

- What are the drivers behind low and high electricity usage?
- Does using very high or very low levels of electricity lead to detriment for vulnerable customers?
- What does self-rationing look like, both with and without a pre-payment meter (PPM)?
- Which consumer groups are using a higher level of network capacity?

¹The report that outlines core capacity can be accessed here: <https://www.citizensadvice.org.uk/about-us/policy/policy-research-topics/energy-policy-research-and-consultation-responses/energy-policy-research/core-network-access-core-capacity/>



2. Executive summary

2.1. Concerns over cost and waste are driving down electricity usage

Participants who use low levels of electricity, by not buying or using products that they think use a lot of electricity or just 'trying to keep on top of it', regularly cited cost as the primary, and in some instances only, reason. In some cases, people rationed their use of certain appliances, like tumble dryers, or put on extra layers to avoid using their heating – whether gas or electric.

Concerns around cost would often overlap with concerns about wasting energy more widely and be incorporated into a wider cost saving daily routine, as people felt they couldn't afford to be wasteful. Some interviewees felt, on principle, that wasting energy was wrong, often citing environmental or cultural reasons.

2.2. Health and comfort are key drivers of high electricity use

For those who used a high level of electricity, health and comfort were often prioritised over concerns about the amount used or the cost of electricity. This ranged from seeing home as a place to relax, to what were deemed non-negotiable necessities, like children's needs (particularly with large families) or dealing with long term illnesses.

Electric heaters were also identified as a key driver of high electricity use. Those that had them relied on them often for short bursts of time to heat up rooms, particularly during winter and in some cases to make up for poor insulation. While some would like to use them for longer, they were seen as very expensive, particularly when using a PPM.

2.3. Low electricity use does not always represent consumer harm

There were two main groups for whom low electricity usage did not lead to consumer detriment: those who saw their electricity needs reduce as their lives and housing dynamics changed; and those who were able to improve their energy efficiency, often with a smart meter.

2.4. But it can have a significant impact on mental and physical health

There were numerous examples of illnesses being caused by self-rationing, from coughs and colds through to pneumonia. In some cases, this included seeking cheaper, but less effective, alternatives, like using a hot water bottle or wearing extra clothes, which could worsen pre-existing conditions.

The impact on mental health was more nuanced. Some participants felt their existing mental health conditions were worsened by the stress and worry of



whether their self-rationing steps had led to more affordable bills. For those that did not have to self-ration, however, energy use – and electricity in particular – had the potential to lift their mood and improve their mental health, whether through being in a warm, bright home, or watching television and hosting friends and family.



3. Methodology

3.1. Overview

Between January and February 2020, Traverse held a total of 50 interviews with consumers across Wales, England and Scotland. They were, on average, 45 minutes long and a mix of face-to-face and telephone depth interviews.

- 15 face-to-face (F2F), in-home interviews
- 35 telephone depth interviews

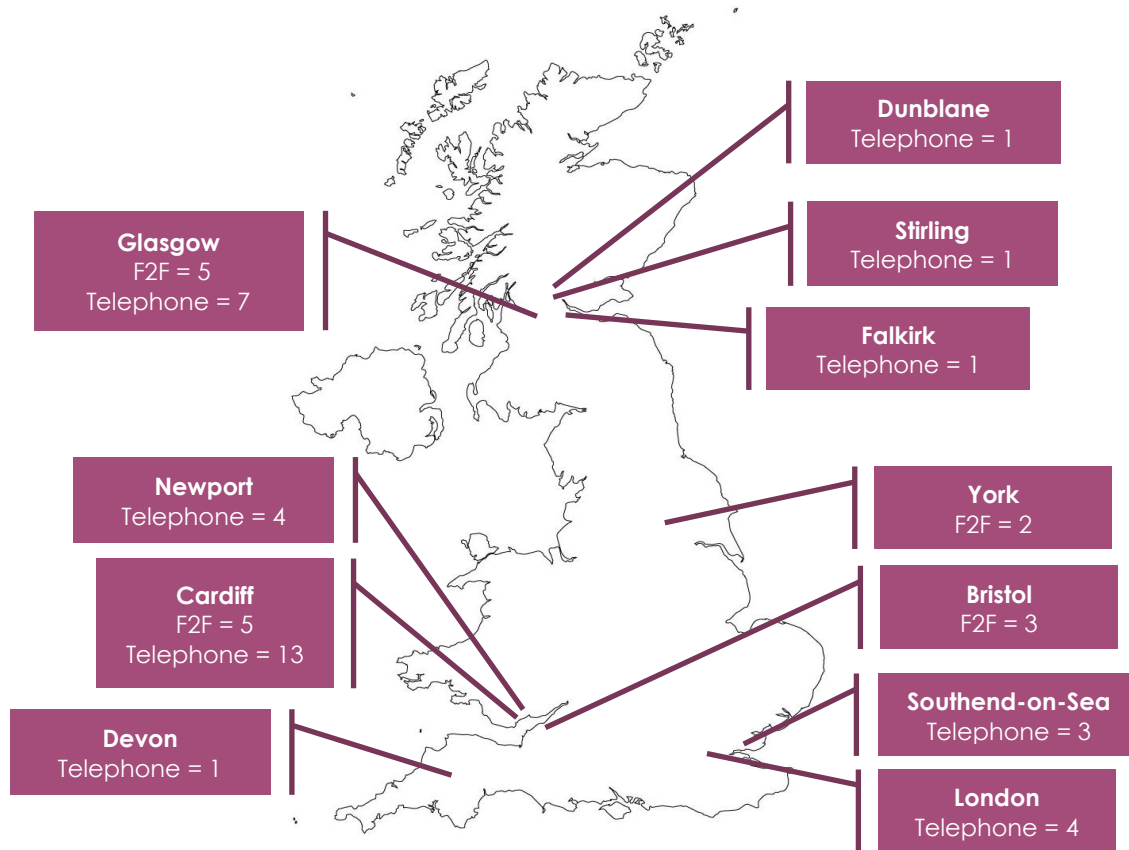
A semi-structured interview guide was used, which can be found in Appendix A. The first two sections of the interview guide invited participants to think about their energy use as a whole and provided information to guide the latter sections of the interview. The next two sections formed the bulk of the interview and were focused on the drivers behind electricity and wider energy use and how this impacted their lives, health and mood.

42 participants were sourced through a trusted recruitment partner (27 telephone and 15 F2F) while 8 telephone interviews were recruited through Traverse's network of community groups.

The following organisations provided participants to be interviewed:

- Southend Association of Voluntary Services
- A Better Start Southend
- Lambeth Pensioners Action Group
- Fuel Poverty Action
- Southwark Group of Tenants Organisation

The telephone depth interview participants were selected from a range of different locations across the UK.



3.2. Methodological challenges

There were a small number of limiting factors on the methodology. These are outlined below, along with an overview of how they were addressed or their impact minimised.

3.2.1. Identifying high and low electricity users, without access to households' actual electricity use in kilowatt hours.

Very few people are aware of their electricity use and recruiting people who do know their usage would bias towards hyperaware electricity users. More people are aware of the cost of electricity, but cost and use are not directly correlated because of varying tariff structures. Energy companies may have this information, but privacy and data protection restrictions would stop them supplying it; while using energy usage information on bills would be complicating as multiple bills would need to be checked, whilst still excluding PPM customers.

To address this: it was agreed to use demographic markers that tend to be associated with high and low electricity use. These markers were chosen following a review of existing research. It is important to note, however, there are certain demographic markers that overlap between high and low users, such as low socio-economic group (SEG) participants who ration because of affordability, but have houses that are energy-intensive to heat and appliances that are intensive to run. Therefore, using demographic markers as opposed to kilowatt hours did not allow us to fully distinguish between high



and low electricity users ahead of the interviews themselves.

3.2.2. The timeline of the research did not align with the timeline needed to secure the desired 15 telephone interviews recruited via community groups.

Community group recruitment was suggested because in our experience, research participants who have been recruited via community groups have more trust in the researchers and are consequently more open about their experiences. However, community recruitment requires a longer lead-in time, and this project had a very tight timeline. Many community groups meet on a monthly or two-monthly basis and are keen to discuss the research with their members. This delay was compounded by potential participants in the community groups' networks taking time to respond. Ultimately this led to a number of community groups responding to us after the fieldwork was completed.

To address this: we recruited an additional 7 participants through our trusted recruitment partner to ensure that we interviewed 50 people overall (35 telephone and 15 F2F). While we had intended to use the community group recruitment to reach groups who are often hard-to-reach, such as disabled people, we were able to ensure that participants recruited via our recruitment partner included those who identify as disabled or with disabled family members. Therefore, by taking the steps to guarantee overall numbers were reached and by using a robust sample, we were able to talk to many different demographic groups both within and outside of community group recruitment.

3.2.3. Difficulties distinguishing between electricity and wider energy use

It was important to include gas customers in the research to understand how attitudes towards energy as a whole, heating and the usage of electricity-only appliances differ. Additionally, as only 14% of GB customers don't use mains gas², not including them in the research would have left out a large section of the population.

Including gas customers in the research meant that some participants had difficulty distinguishing between electricity and wider energy use in conversation.

To address this: our interviewers and analysts were able to differentiate energy use based on the answers to the screener and interview questions themselves. For example, we knew from the screener whether a participant had gas heating, and so when they were talking about heat in the interview, we knew they were talking about gas.

If participants are unaware of the different uses for electricity and gas, or if they are aware and conflate the two, it raises wider questions around how

² <https://www.ofgem.gov.uk/ofgem-publications/98027/insightpaperonhouseholdswithelectricandothernon-gasheatingpdf>



electricity policy is interpreted by consumers.

3.3. *Sampling and recruitment*

The participants recruited through community groups were chosen as they represented key demographic groups such as pensioners, those living in fuel poverty, single mothers or social housing tenants.

For this reason, alongside concerns around the impact on the dynamic of the interview after a long set of screener questions, these participants were only asked for basic demographic information.

Prescribed quotas were included in the recruitment process to ensure that the sample met a number of demographic criteria (age, gender, ethnicity, vulnerability).

As set out in section 3.2, identifiers of low and high electricity use were used in place of household electricity usage.

The full recruitment screener can be found in Appendix B.

Low electricity users

Energy saving behaviours such as turning off heating even if it is cold, missing meals to reduce energy use and/or limiting use of household appliances to save electricity are associated with low electricity users. 25 of the 42 participants recruited via our recruitment partner reported doing at least one of these (although none said they had missed meals), and thus qualified as a low electricity user.

High electricity users

Electric, rather than gas, heating leads to higher electricity use, as well to a higher overall energy cost. As a result, interviews were conducted with 12 participants with electric heating.

Heat pumps or district heating are associated with higher energy usage. Participants with heat pumps proved very difficult to recruit so instead we conducted 5 interviews with participants who rely on district heating.

We also found that people's lifestyles can drive up their electricity use, particularly people in vulnerable situations, so we asked people if they have mobility issues that can hinder day-to-day activities such as turning appliances on and off or have a medical condition that requires equipment at home, such as medication that requires refrigeration. Two interviewees answered yes to at least one of these statements.

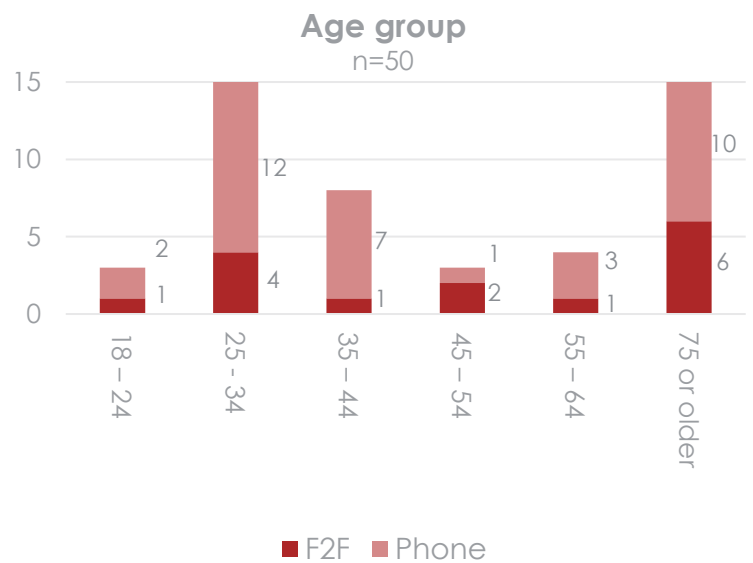
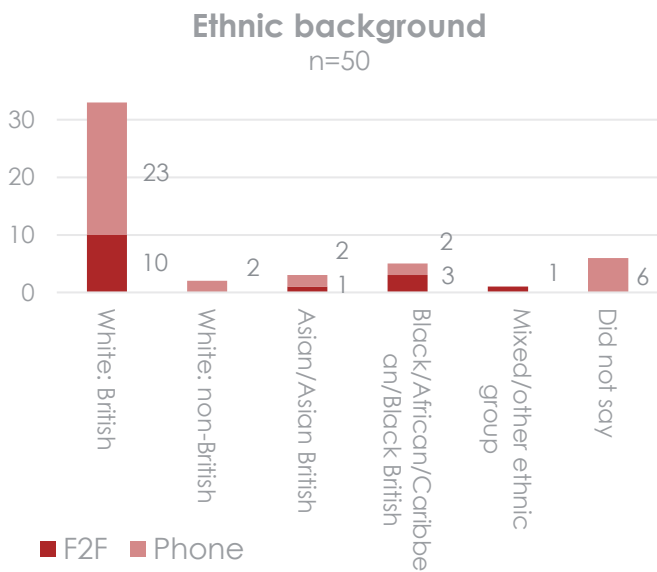
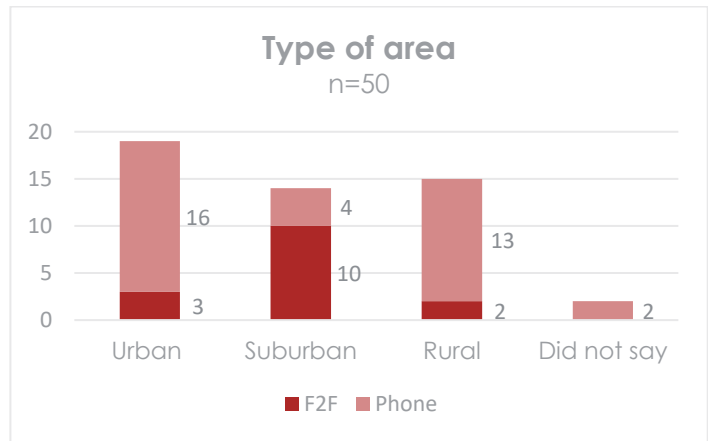
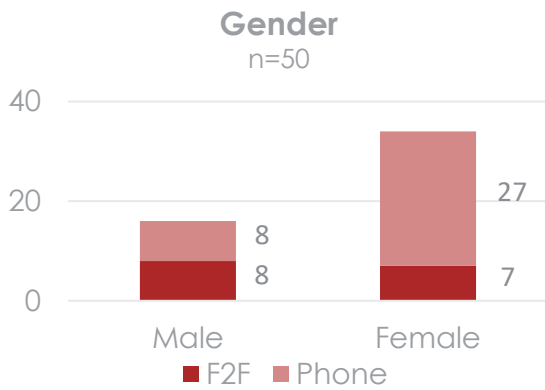
Finally, households without smart technology are less likely to be able to

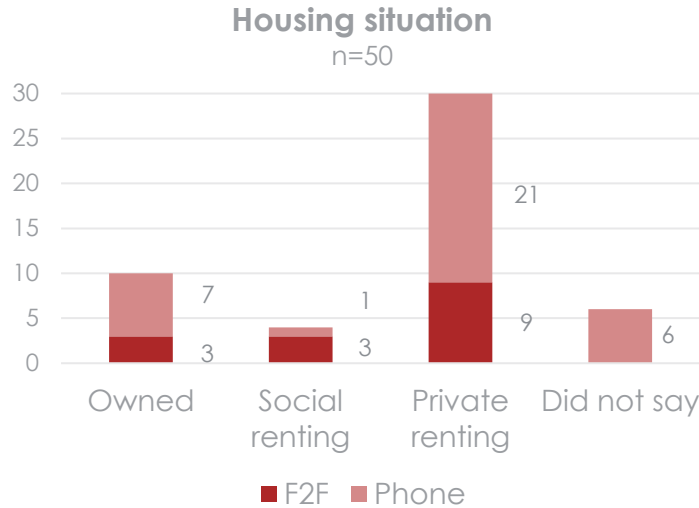


control their electricity usage and reduce inefficiencies. 23 interviewees had no smart electricity technology in their home.

3.3.1. Demographic information

The charts below show the demographics of participants recruited through our recruitment partner in this research. The data has been separated by F2F interviews and telephone depth interviews.

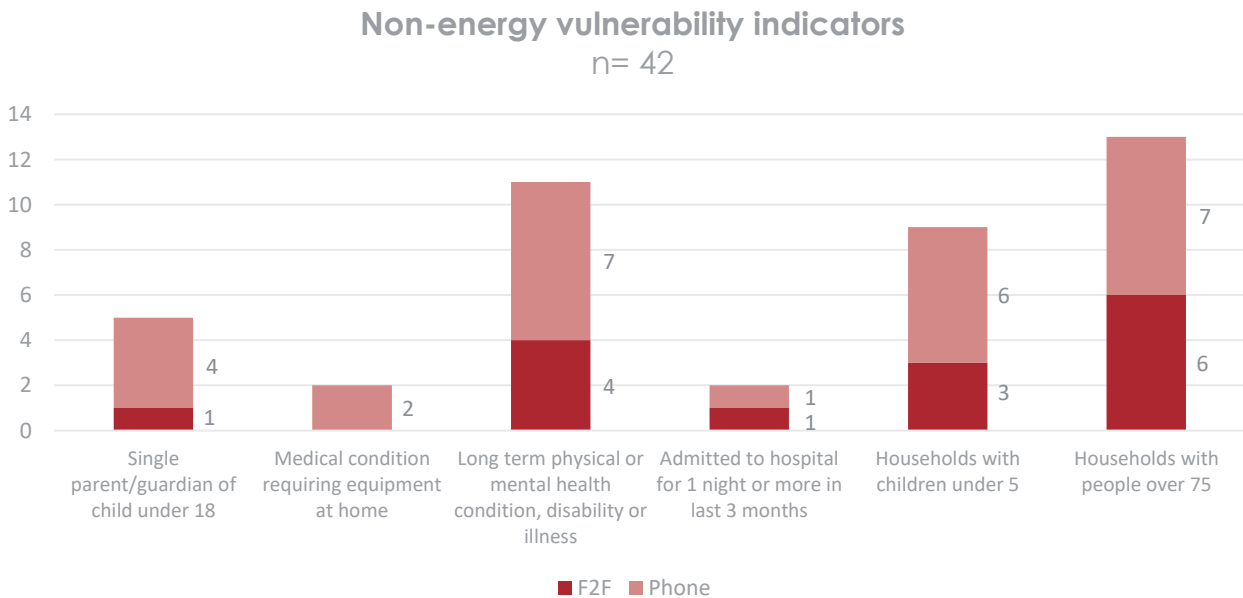




3.3.2. Non-energy vulnerability indicators

Some of the indicators used to reach low and high electricity users also captured vulnerability, such as medical conditions or turning the heating off even when it's cold. We also included several wider indicators of vulnerability in the screener.

These were not included in the community group recruitment, so the 42 participants who were recruited via our trusted recruitment partner were asked these questions. The graph below shows indicators from responses to two separate questions, where participants could choose more than one answer. It does not include those who answered 'none of the above' to either question.



3.3.3. Electricity and wider energy use

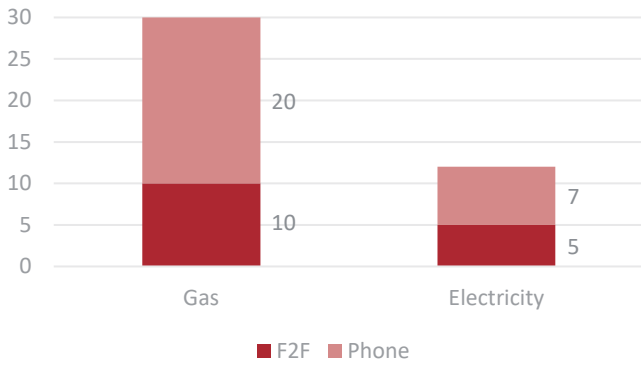
In the recruitment process, participants were asked a number of questions



about their electricity and wider energy use. The charts below show the electricity and wider energy use of participants separated by type of interview (F2F interviews and telephone depth interviews).

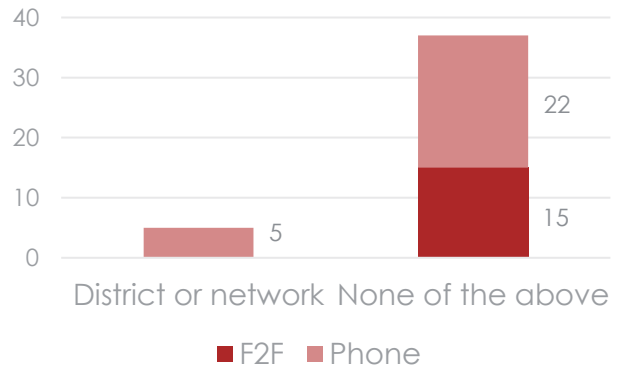
Energy used for heating

n=42



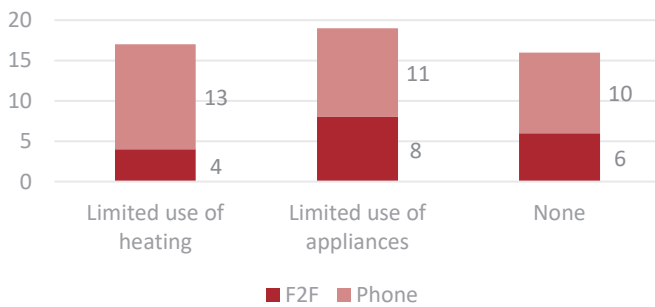
District or network heating

n=42



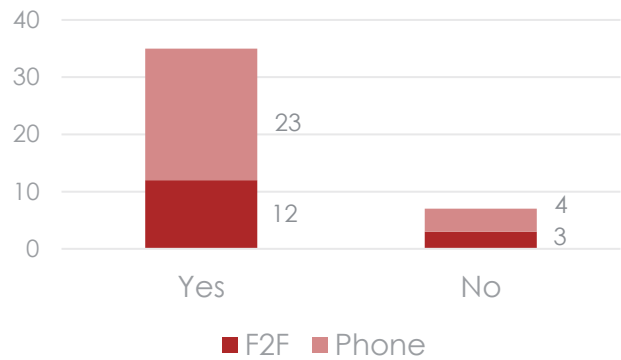
Measures to reduce energy* usage

n=42**



Smart technology

n=42



*This question referred to energy use broadly, including gas and electric heating.

** Participants could select more than one response to this question, so the total number of responses exceeds the number of respondents.



4. Findings

4.1. Key drivers of low electricity use

Cost

Cost was the major driver behind low electricity use, with participants citing the price of electricity as the reason for trying to limit their consumption. Participants were very aware of the cost of their electricity bills and described habits such as turning the lights off and switching off plugs at the wall as behaviours that were driven by cost.

Participants with PPMs were especially likely to try to limit their electricity use for financial reasons as they felt that they had to top up the meters too regularly, spending more than they were comfortable with or could afford. For example, participants described limiting their use of appliances such as tumble dryers when on a PPM to avoid having their electricity cut off.

Sometimes having children in the house made the cost-benefit calculation more difficult. These participants expressed a desire to hold back because PPM electricity felt unaffordable but felt that the electricity use was important for their children. One woman in Cardiff talked about the tension between needing to use the tumble dryer for her family, and the stress of needing to top up a PPM:

"I have to use [the tumble dryer] because with my family we have so many clothes. It costs so much money to run the tumble dryer. When we moved into a house it was a prepayment meter, which was really difficult and stressful... You notice it so much more when you have to go to the storage to top with the usage."

(Female, Cardiff)

A participant with electric heating in Falkirk felt similarly about needing to provide warmth for his son, even if he is tempted to hold back for himself:

"I do find that I'm cold but don't want to turn the heating on; it changes when my son is here"

(Male, Falkirk)

Interestingly, both these participants were previously on PPMs and had recently switched to direct debit. Their experiences and habits from PPMs may now be informing their behaviour on direct debit. While the constant concerns driven by using their PPM may have prompted them to switch, it is clear that while some customers are able to switch, others cannot.

Participants who were low electricity users but were not on PPMs were still motivated by cost. They feared unexpectedly higher bills and the effect these had on their monthly budgets.

Central heating was seen as particularly expensive, especially, but not exclusively for those with electric heating. Participants described putting on extra layers of clothing to avoid using the heating and commented that if



energy was cheaper, they would put on the heating more.

Certain appliances, such as tumble dryers, were also seen as expensive to use. Low electricity users either did not own a tumble dryer due to the cost or tried to limit the use of one as much as possible by drying their laundry on radiators or outside on washing lines.

Another theme seen in interviews were differences between men and women in the amount they think about electricity use. Gender played into participants' thoughts about and usage of electricity in ways related to traditional gender roles, and consequently the gender pay gap. First, several mothers claimed they think about electricity more than any other member of the household and attributed this extra thought to the household chores they do. One woman explained that she was thinking about, and consequently worrying about energy the most, because she was using it the most,

"I am using the most [electricity] doing all the washing, and cooking and cleaning." (Female, Cardiff)

Secondly, several pensioner women, especially divorced or widowed pensioner women, spoke of the time they took off from work to raise their children, and how that affected their pension. This came up when they were describing how they pay their electricity bills. Interestingly, the interview participants who most clearly connected childcare to a lower income was a man, perhaps because it deviated from the norm. His wife passed away when his two daughters were young, and he clearly connected his time off to raise his daughters to the fuel poverty he was experiencing in old age. The older women, despite describing the amount of care work they did and their current struggles to pay the bills, did not make the connection so clear.

Waste

Avoiding waste was another key driver for low electricity users, whether to save money as detailed above, or seeing value in not being wasteful.

*"You just have to pay up, not be wasteful, try to be frugal and not use what you can"
(Female, Scotland)*

Some of these low electricity users believed that modern society encouraged the wasting of energy and that it was a matter of principle or a product of their cultural upbringing to avoid 'being wasteful'. This often resulted in going around after children or flatmates turning appliances off or making sure they are turned off at the socket (with some exceptions such as a fridge, freezer or Wi-Fi). The environment was also regularly cited as a reason people don't want to waste energy.

4.2. Key drivers of high electricity use



Health

Health was a significant driver behind high electricity use, particularly for elderly participants, who felt that their health was more important than reducing their electricity use. Others were driven by a need for cleanliness, particularly if they had young children or pre-existing medical conditions, which required more regular use of the washing machine. If people had damp in their home and were unable to dry clothes outside, using a tumble dryer became a necessity.

“My main worry is the tumble dryer. Things also take longer to dry in a cold damp house.” (Female, Newport)

Comfort

Participants who used high levels of electricity also cited comfort as a priority, particularly if they were elderly, feeling sad or had other people in their homes such as family or guests to think of.

Heating or the use of baths or showers to maintain wellbeing were the most common functions referred to when high electricity users described using it for their own comfort.

Households with young children were especially likely to be high electricity users for comfort reasons, as participants were less willing to compromise on the comfort of their children than they would be with their own comfort.

Awareness of electricity use

Those consuming high levels of electricity were less likely to be aware of their electricity use than low electricity users. They often did not think about their electricity use and tended to use appliances or turn on the heating automatically.

Participants with children commented that their children were less conscious of their electricity use and, therefore, more likely to leave appliances running when they weren't being used.

Electric heaters

Electric heaters – used to stop the home or room becoming too cold – were the reason some participants were high electricity users. They were often cited as the main, or only, appliance that prompted interviewees to think about the amount of electricity being used, with concerns expressed over them ‘draining the electric’, thinking about the ‘click, click, click’ of money leaving their bank account or their use leading to more regular top ups on people's PPM.

For two interviewees, these concerns would lead to using the heater only in short bursts ranging from two hours first thing in the morning, to 15-20 minute periods to heat themselves up when feeling very cold. In some cases, this was compounded by poorly insulated homes, such as floor to ceiling windows that let out heat.



Three participants, who weren't high electricity users, said they would want to own an electric heater but were hesitant to buy one as they believed it would cost too much.

"I would like to have a portable heater in the bedroom, just to warm up slightly, but I know how high the charges are."

(Male, London)

4.3. Low levels of electricity use are not always an indication of consumer detriment

Families parting ways often leads to lower levels of electricity use; a single person's electricity needs are not as high as a families' needs. Although the change in circumstances may be detrimental to that person's well-being, the low electricity use is not. Examples that came up in interviews were divorce, death, and children moving out. A common theme amongst elderly participants was that the relationship with their grown children has changed in old age in a way that reflects their changed energy use. Their children are helping them lower their electricity and wider energy use by buying them efficient appliances, and indirectly by taking them out of the house, or on holiday.

There were several participants for whom low electricity was a relatively new phenomenon aligning with the installation of a smart meter. The smart meter and its associated apps allowed these participants to track and manage their electricity use. Some participants described their interactions with the smart meter display screen, while others talked about viewing their usage and paying their bills from apps on their phone. One participant specifically mentioned using a Hive smart home device. In two cases – a young couple and a young family – the participants had an unexpectedly large electricity bill the first winter after moving to a new house. Both households had smart meters installed so that they could better understand their use and efficiency. They were able to bring their bills to a comfortable level and the electricity use to a low level. The family, with three young children, also had the resources to install energy efficient appliances, cavity wall insulation and double glazing during a renovation.

Lastly, participants consistently and without prompt raised climate change or the environment as an issue. Many talked about this when discussing their future energy use. They would articulate that they want energy to be more affordable, but if it were more affordable, they would still be concerned with not using too much because of climate change, or in one woman's words 'that planet thing'.

It was clear that many participants did not see low electricity use as wholly negative – whether through seeing reducing waste as a virtue or for environmental reasons – but concerns remained about the impact on the lives of vulnerable customers.



4.4. Self-rationing electricity can take a toll on mental and, particularly, physical health

While not always an indicator of consumer detriment, our interviews revealed numerous examples of illnesses caused by self-rationing, from coughs and colds to pneumonia. Some participants talked through their own self-rationing behaviour or illnesses they had developed, while others made the correlation between the two themselves. For example, three participants explained that, in addition to getting sick more easily in a cold, damp home, the illnesses feel worse and last longer.

Participants with existing health conditions see them worsen in a cold home. One participant with a cardiac condition could not follow his doctors' orders to stay warm because he cannot afford it. Four participants reported asthma and arthritis either requiring additional heaters or humidifiers, or if this wasn't possible seeing their conditions worsen when it is cold and their home is damp.

*"I've had more colds this winter, so has my son. I had a cold perpetually throughout the winter. Similar with my son, but it's been on and off."
(Male, Falkirk)*

Participants with physical health issues often had strategies for self-rationing, such as keeping one room in the house warm, only boiling one cup of water at a time or using thermoses to keep water warm. Others reported using hot water bottles to keep warm if ill. Although these strategies helped with warmth they did not help with the damp and mould and were not as effective as heating.

Self-rationing also affects mental health. Participants who self-ration expressed the connection between mental health and electricity most clearly when they were talking about paying their bills. Those who reported self-rationing behaviour also reported being very anxious and stressed when their bill arrives. This is due to waiting to see if the fruits of their labour have paid off; their self-rationing translated to a more affordable bill, or they managed to avoid incurring an additional charge.

For example, one participant who reported self-rationing explained the stress:

*"[I am] a bit anxious sometimes. Making the money last, it does get a bit stressful. I do suffer from depression, and I've been on tablets for a while. [...] Just gotta get through the month."
(Female, Newport)*

Participants who were on prepayment meters shared this stress, constantly hoping their self-rationing would work.

While no participants made the connection themselves between self-rationing and their mental health in their everyday lives, several who self-ration reported having mental health issues. These participants often



expressed fear when using energy intensive appliances, like a washing machine.

Another indication of the impact of self-rationing was the positive impact it had on the mental health of participants who were able to use more energy, from keeping their house warm and bright or taking a bath, through to strategies to cope with depression or loneliness that required additional electricity. The interviews with several older participants revealed that the radio and television are often left on for comfort, while others explained that they liked to have visitors stay, and that while it used more energy, it was worth it for the company. In these cases, keeping their house warm or taking a bath did not mean they were necessarily high electricity users, it meant that they were not self-rationing. Therefore, they described the absence of self-rationing as being positively connected to their mental health.

One participant articulated the tension between the stressful cost of energy and the de-stressing power of a warm home:

"Yes, with the cost of the heat, it affects the way people feel. But coming into a warm house makes you feel better."

(Male, Glasgow)

We did not specifically ask participants if they were self-rationing other goods, such as food. However, a number of participants raised this issue themselves. For example, one elderly participant explained that he chose to cook and eat infrequently both because of the cost of food and the cost of electricity. He ate simple meals that could be heated briefly in the microwave. More research would need to be conducted to understand the compounding impact of self-rationing electricity and food on the health and wellbeing of consumers.

5. Case studies

Please note that to protect the anonymity of participants, names have been changed in all case studies.

5.1. Case study 1 – Duncan, Cardiff

Location: Urban

Age: 80

SEG: D

Employment: Retired

The apartment is in a tower block owned by a housing association and is designed to accommodate the needs of residents over the age of 60. Duncan lives alone and is renting the apartment, which has one bedroom, a living room, kitchen and bathroom.

The apartment is connected to gas and electricity. Gas is used for the boiler and central heating. Electricity is used for basic appliances (fridge freezer, washing machine, Hoover and electric heater) and entertainment (TV, hi-fi system, Sky box).

Duncan is retired so his routine on weekdays and weekends are very similar. In the morning the kettle and toaster are used for breakfast, after which he tends to go out for the day. The apartment has got double glazing, and until recently the outside of the building was insulated with cladding. Since the Grenfell tragedy, the housing association has decided to replace the cladding which means the tower block is no longer insulated or weatherproof.



Front of tower block with cladding removed

Prior to the removal of the cladding the apartment was sufficiently warm with the central heating being on for two hours in the morning and two hours in the evening.

To save money, Duncan now uses an additional electric radiator to only heat up the room he's in. This also stops the apartment getting damp which

worsens his asthma and arthritis. Duncan uses a smart meter and tops up his gas and electricity meter on a weekly basis, so has noticed that spending on utilities has gone up since the cladding has been removed.

Topping up £20 for gas and electricity respectively each week throughout the year is a budget management strategy to account for the fact that more energy is used in the winter. At the time of the interview, Duncan had over £100 in credit for both electricity and gas which had accumulated over warmer months. Despite relying only on a private pension (£300 total monthly income), this strategy stops Duncan feeling stressed or anxious.

5.2. Case study 2 – Barbara, Bristol

Location: Urban

Age: 29

SEG: C2

Employment: Part-time

Barbara is a single mother with a toddler living in a rented Council apartment which has one bedroom, combined kitchen and living room, and one bathroom. The apartment is fitted with a fridge freezer, microwave, electric oven and cooker. Electric appliances are a TV, hi-fi system, Freeview box and some plug-in electronic children's toys. Washing clothes is done in a communal laundry room so there is no washing machine in the apartment.

The property is not connected to gas and has electric storage heaters. Because the storage heaters are inefficient and take several hours to warm up, Barbara relies on plug-in electric heaters. Despite being on an economy 7 tariff and the property being double-glazed this is a very expensive solution. The apartment also has a problem with damp, which Barbara said has negatively affected her child's health. To combat this damp Barbara feels she has no other choice but to use the expensive plug-in heaters.



Inefficient fan heater in the kitchen

The apartment is also fitted with very inefficient fan heaters in the kitchen



and bathroom which Barbara says are too expensive to use anyway.

Despite being extremely frugal and energy-conscious (to the point of unplugging the fridge if no one is in the apartment for a few days), topping-up the meter monthly makes Barbara feel anxious and stressed. Working part-time means that there is very little spare income and as a result the weekly budget is very tight during winter months. Sometimes Barbara has to make a financial decision between spending money on energy and buying basic food items.

5.3. Case study 3 – Lucy, Glasgow

Location: Suburban

Age: 57

SEG: D

Employment: Unemployed/informal employment

Lucy lives in a flat on the sixth floor of a council-owned tower block in an estate in Glasgow. Thirty years has granted Lucy plenty of time to embed herself in neighbourhood networks and deepen her involvement in charity work and religious activities. Her deep connection to community groups challenges the concept of household electricity use, which is further complicated by her and her son's serious health conditions.

Lucy's routines make her overall electricity use difficult to determine. She has socio-economic markers that suggest she is a low electricity user, but through her charity work she essentially donates electricity to community members through food and washing. She is in debt with the gas company, so feels she needs to use her portable electric heater to stay warm, but her house is drafty and the light from the portable heater is bad for her epilepsy. She and her son, who has Asperger's, are home most of the day, but she practices a lot of energy saving behaviour.

Self-rationing feels like a misnomer in Lucy's situation because she is not rationing use for herself. She is rationing, but for use beyond herself and beyond her household. She bought an energy efficient washer for the large amount of laundry she does for the homeless, whom she will often let stay in her home. She uses a pressure cooker because it's so fast and so she thinks it uses less energy than her full electric oven.

"I gotta watch what I am doing because I am cooking for so many people,"

When she uses the electric kettle, she pours the water into two large thermoses, that way, when people come over for tea, she does not have to boil more water. Lucy rations, but to share.

Lucy was very ill this winter, she developed pneumonia and explained that her cold, drafty house made her recovery period longer. At the same time,



her epilepsy causes her to have contradictory electricity needs. The light from the portable electric heater, which would have helped her recover from pneumonia, triggers seizures. Therefore, it is not straight forward for her to address her health needs through electricity use. Instead, improving the quality of her housing, such as addressing the large gap in her exterior door, would have the most impact.



6. Recommendations

This research was designed to increase Citizens Advice's understanding of how electricity policy impacts consumers and was conducted alongside Ofgem's Access Significant Code Review (herein 'code review'). This section provides recommendations for further research and highlights which factors to consider amidst proposed policy changes.

6.1. Recommendation 1 – Pricing and affordability: Avoiding a 'how low can you go' approach

Our research has highlighted how low-electricity users chose to ration their electricity use in ways that negatively impact their health and well-being. The motivation behind this type of self-rationing is most often cost. Therefore, in moving to make the network usage more flexible and efficient, Ofgem needs to remain vigilant that its approach does not end up being interpreted as incentivising a 'how low can you go' approach to electricity usage that is dangerous for some customers.

Price signals, new smart technologies, and the excitement around net-zero incentivise behaviour change amongst electricity consumers. The code review is investigating how to increase flexibility and shift consumer demand to off-peak hours. Our research showed that when consumers think about the environment and their energy future, they are thinking about reducing their energy needs. Our findings show that low electricity use is not always seen as a bad thing. However, this approach, as it could be interpreted by consumers, to encourage as much reduction as possible, may be harmful for people who need electricity and for whom price already prevents them from using what they need.

Several participants we interviewed reported self-rationing in ways that affected their health and well-being. Their rationing exacerbated their symptoms of existing conditions, lead them to fall ill more often, and negatively impacted their mental health.

Addressing this challenge will not be straight forward, especially considering consumers are inattentive to marginal price changes and are averse to complex pricing structure³. One solution could be a price floor that is simple and clearly communicated such that people know the electricity they need to meet their basic needs is at a very low cost.

However, this recommendation relies on a deeper understanding of core capacity and basic electricity needs, building on the research already completed by Citizens Advice. It also relies on the research agenda outlined

³https://www.ofgem.gov.uk/system/files/docs/2019/12/behavioural_insights_and_forward_looking_chartering_report_0.pdf



in recommendation 3: investigating whose demands above a core capacity are inflexible and why.

6.2. Recommendation 2 – Beyond the bill and into the home: Considering housing quality as part of the code review

This recommendation suggests that housing quality needs to be considered alongside access and charge restructuring. It is not only demographic markers that depict vulnerability; it is also the quality of people's homes.

We recommend considering housing quality and electricity alongside each other in further research and advocacy for two key reasons⁴. The first reason has been previously documented and is evidenced by our findings: housing quality is directly related to electricity usage. This was especially true for participants with electric heating. People use the heating and dehumidifiers to address damp and drafty homes and use the tumble dryer because air drying in a damp home has knock on health effects.

The second reason is less often addressed: poor quality housing prevents customers – many of whom are low-income – from reaping the benefits of the network changes. At the centre of Ofgem's code review are twin goals: ensuring the network is used efficiently and flexibly; and avoiding unnecessary costs on energy bills while helping people enjoy the benefits of new technology and services. Some of the technologies being explored are smart and automated. Our research showed that there is a gap between how these technologies are meant to work, and how they work when housing quality gets in the way. A thermostat that adjusts the central heating temperature during peak times cannot work in a poorly insulated, drafty home or when customers who struggle to afford their bills, will use alternative approaches to heating their home, like short term burst heating.

The first point exacerbates the second point because participants who use electricity to compensate for poor quality housing – for both health and family care reasons – had fixed and relatively inflexible demands. For example, one woman we interviewed in Wales has a university-age daughter who is ill with a serious kidney disease and has mobility issues. She requires additional electricity for her stairlift, additional electric heating to stay warm, and more frequent baths. Electricity use for these needs cannot be deferred to evenings and weekends.

Furthermore, if customers are indeed inattentive to marginal price changes, as outlined above, then automation – like the automated thermostat

⁴At present, key code review documents including 'Electricity Network Access and Forward-Looking Charging Review', do not mention housing quality.



described in the 'Behaviour insights and forward-looking charging report' – is essential to maximize the benefits of time of use tariffs. If people in low quality homes are not set to gain from the changes to network access and forward-looking charges, then their housing situations need to be taken into consideration whilst Citizens Advice is advocating for their protection.

6.3. Recommendation 3 – Researching high electricity users: The need for data and narratives

This recommendation outlines an agenda for future research on high electricity users. It would help to identify where high users' needs are inflexible, especially when these needs are directly connected to health and well-being. Time of use tariffs, which are proposed as part of the network changes, could have a disproportionate impact on these customers, in particular. For example, if for health reasons you need to use electricity at peak times, and you are unable to switch your time of use, you will be paying more.

Our research illustrated how people in vulnerable situations oftentimes have inflexible electricity needs, and what their electricity needs look like. For example, several participants with arthritis needed additional heat to warm up their hands, or else they would have severely restricted mobility. It would be beneficial to know how much electricity, in kilowatt hours, these behaviours required.



Appendix A – Interview discussion guide



Citizens Advice Small Users Network Analysis: Draft Discussion Guide

Everyday routines

Can you describe your average weekday? Weekend?

- What do you do first thing in the morning?
- When do you leave the house? Is there anyone who is home all day?
- What do you do when you get home?
- At what time of day do you boil water?
- At what time of day do you use household appliances?

Who else lives in your house? And how does your routine differ from theirs?

Household context

What is your house like?

- How many rooms does it have?
- How many levels?
- Is it connected to gas?

How long have you lived there?

Are you an owner, leaseholder, public tenant, or private tenant?

Do you know how old the property is? Or when it was last renovated and what those renovations were?

What do you use electricity for? Prompts:

- Heating in the winter e.g. full-electric, space heaters, or electric blankets? Is there a radiator in every room? Are the hot water pipes exposed or covered?
- Cooling in the summer e.g. air conditioning or fans?
- Cooking, e.g. electric stove, microwave oven, toaster, kettle, blender?
- Cleaning, e.g. washer, or dryer?
- Large appliances, e.g. fridge?
- Entertainment, e.g. television, or computer?

If the participant relies on electric heating continue to ask:

- Do you happen to know the energy grade of your home?
- Do you have single- or double-glazed windows?
- Is there a part of your house that you feel cold air enter from? And warm air exit from?

Thinking about energy? Acting on energy?

In this section of the interview, we are hoping to get a clearer picture of why you use the energy you do. It may not be something you think about regularly, or it may be on your mind a lot! Either way, it is good for us to know much people think about the energy they use.

Before we get into the specific questions, are you able to share your initial thoughts on why you use the energy you use?



What is going through your mind when you use [insert appliance]? Is this different from when you use energy from [insert appliance]?

Do you think before you use energy?

- If not, does the decision feel automatic? How does it feel?
- If so, what are you considering?

How does the price of energy affect your decision to use energy?

What would affordable energy look like to you? How much would you be paying?

Do different people in your house use different amounts of energy? Can you explain?

How the energy you use change from month to month or over the course of a year?

Energy and the rest of your life

Note: How the interviewer proceeds with this section will depend a lot on earlier answers. The interviewer should pick up on themes and comments from the earlier sections to add depth to this section. Therefore, these questions are quite broad.

In this section of the interview, we want to talk about how energy affects different parts of your life, including your health, your family-life, and maybe even your mood.

Before I ask specific questions, do you have any thoughts on this?

What age are the other residents in your house? If young children or older people, prompt:

- How does having [younger/older] people in your house affect your energy use?
- What additional energy needs do they have?

Does anyone in your house have a health condition or disability that affects their day-to-day life? If so, prompt:

- How does having them in your house affect your energy use?
- What additional energy needs do they have?

Have you noticed your health being affected by the amount of energy you can or cannot use? How so?


Does paying energy bills make you feel a certain way? (e.g. stressed, anxious) Can you explain? How does this affect your energy use?

How does the amount of energy you use now compare to when you were younger?

In an ideal future how much energy would you be using?



Appendix B – Recruitment screener



Citizens Advice interview screener

January 2020

Question number	Question text	Answers	Routing
Q1	Have you taken part in market research projects in the last two years? If so, how many?	1. Yes, 3 or more 2. Yes, 1 or 2 3. No	Yes = CLOSE No = Q2
Q2	Have you taken part in any research on the topic of energy usage in the past year?	1. Yes 2. No	Yes = CLOSE No = Q3
Q3	What age group are you in?	1. Under 18 2. 18 – 24 3. 25 - 34 4. 35 – 44 5. 45 – 54 6. 55 – 64 7. 65 – 74 8. 75 or older	1 = CLOSE
Q4	Which gender best describes you?	1. Male 2. Female 3. Other 4. Prefer not to say	
Q5	How would you describe your ethnic background?	1. White: British 2. White: non-British 3. Asian/Asian British 4. Black/African/Caribbean/Black British 5. Mixed/other ethnic group 6. Prefer not to say	



Q7	What is the occupation of the main income earner in your household?	<ol style="list-style-type: none"> 1. Senior managerial or professional - AB 2. Intermediate managerial, administrative or professional - AB 3. Supervisor; clerical; junior managerial, administrative or professional – C1/C2 4. Manual worker (with industry qualifications) – C1/C2 5. Manual worker (with no qualifications) - DE 6. Not working – DE [includes all non-working e.g. unemployed, stay-at-home parents, carers, long-term sick, disabled etc.] 7. Retired 8. Student – C1/C2 9. Prefer not to say – n/a 	<p>1 – 2 = CLOSE 3 – 8 = Q8</p>
Q8	How would you describe the area that you live in?	<ol style="list-style-type: none"> 1. Urban (e.g. built up areas such as those close to the centre of cities and towns) 2. Suburban (e.g. the outskirts of cities and towns) 3. Rural (e.g. in the countryside and small villages) 	
Q9	Which of the following best describes your housing situation?	<ol style="list-style-type: none"> 1. Owned outright/with a mortgage 2. Social rented (e.g. from council or housing association) 3. Private rented 4. Other 	
Q10	How many bedrooms does your home have?	<ol style="list-style-type: none"> 1. 1 bedroom 2. 2 bedrooms 3. 3 bedrooms 4. 4 bedrooms or more bedrooms 	
Q11	How many people live in your household, including yourself?	<ol style="list-style-type: none"> 1. 1 2. 2 3. 3 4. 4 5. 5 	<p>1 = Q13 2 – 6 = Q12</p>



		6. 6 or more	
Q12	Think about the people who live in your household. What age groups do they belong to? Please check all that apply	1. Under 5 2. 5 - 16 3. 17 – 64 4. 65 – 74 5. 75 or older	
Q13	How do you heat your home?	1. Gas 2. Electricity 3. Other 4. Unsure	2 = Q14 & Q15 1, 3 or 4 = Q15 only
Q14	Please select if any of the below apply to you	1. I have a heat pump in my house 2. I live in an area served by district heating or a heating network 3. None of the above	
Q15	Please select if any of the below apply to you;	1. I am a single parent/guardian of a child under eighteen 2. I have mobility issues that hinder my ability to do day-to-day activities such as answering the door or turning appliances on and off 3. I have a medical condition that requires equipment at home (this includes medicine that needs to be refrigerated) 4. I have a long-term physical or mental health condition, disability or illness. By long-term we mean anything lasting or expected to last 12 months or more. Please include conditions related to old age. 5. I have a condition that can make communication more challenging such as visual impairment or hearing difficulties 6. I have been admitted to hospital for one night or more in the past three months	



		7. None of the above	
Q16	Please select if any of the below apply to you;	<ol style="list-style-type: none">1. I have missed meals to reduce energy use2. I have turned the heating off to reduce energy use even if it is cold3. I have limited use of household appliances to reduce energy use4. None of the above	
Q17	Do you receive the winter heating allowance?	<ol style="list-style-type: none">1. Yes2. No1. Prefer not to say	
Q18	<p>Does your household use 'smart' energy technology such as a smart meter or a smart heating system like Hive?</p> <p>A smart meter is a type of gas and electricity meter that sends digital meter readings to your energy supplier for more accurate energy bills</p>	<ol style="list-style-type: none">1. Yes2. No3. Don't know	
Q19	<p>Would you be happy for a member of the client team to attend your interview?</p> <p>This is optional and your response will not affect whether or not you are selected for interview</p>	<ol style="list-style-type: none">1. Yes2. No3. Don't know	

