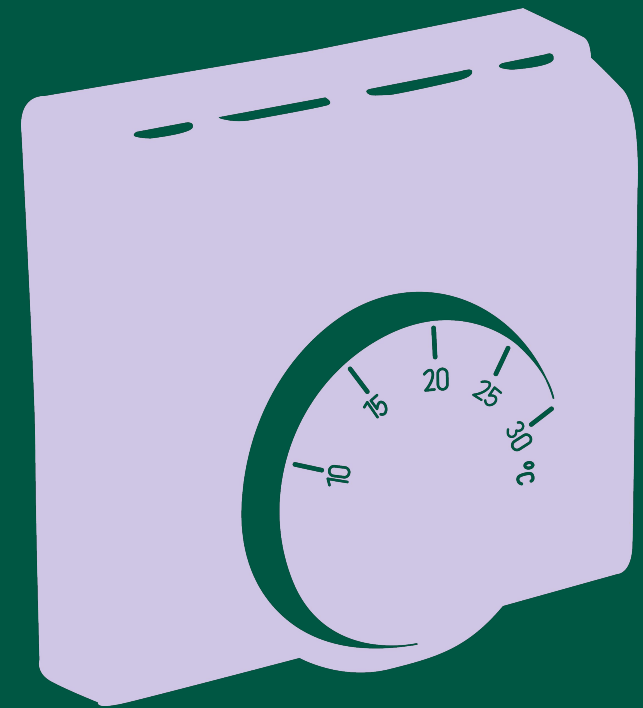


Taking the temperature:

Consumer choice and low carbon heating



Introduction

Our homes account for a quarter of the UK's energy use and 15% of total carbon emissions. Meeting the UK's new target of net-zero emissions by 2050 will require a near-complete decarbonisation of all our homes. This means making them as efficient as possible, including reducing the amount of heat they lose, and ensuring the remaining heat demand is met using low-carbon heating systems.

This is a challenge on an unprecedented scale. While new homes are built to a much higher thermal efficiency, we still have relatively old housing stock in the UK. This includes some homes that will be extremely difficult and expensive to retrofit with energy efficiency measures. In addition, the installation of energy efficiency measures are often not a priority for many homeowners or are out of reach for others, such as those in rented accommodation.

Overall, more than 29 million homes¹ will need a low-carbon intervention to achieve net-zero and that intervention will be different for every home. People will need to make choices about the way their home is heated. Navigating the market for these new technologies will prove challenging for all but the most engaged, technology savvy consumers².

Yet these choices will be vitally important. Changing the way our homes are heated is vital to meet the UK's net zero carbon emission target. Choosing low carbon heat options could be costly, confusing and difficult. These decisions will have a huge impact on the way people live in their homes.

This report considers how people might make these choices in the future and will this choice, as we understand it today, need to be the same?

We draw out 3 key lessons:

1 Early communication will be vital

The way people react to any policy that restricts their choice will depend on their understanding of the government's wider priorities

2

Government will be expected to mitigate risks

Particularly if low carbon heat options are made mandatory, consumers will expect government to minimise any risks that they might be exposed to

3

Consumers will want to retain control in some areas

People who have less control over the heat system in their home will need extra reassurance about cost and quality

Citizens Advice is calling for the government to establish a **net zero homes guarantee**. The guarantee should be a government-backed scheme to give people confidence to install measures needed to install low-carbon heating systems and energy efficiency measures. A guarantee would help people to make informed decisions, and establish simple, enforceable, protections, so people can engage with confidence. Achieving the transition to low carbon heat will only be possible if we inform, protect and support people, with the changes that we all have to make to our homes.

How do we choose

Almost 85% of homes across the UK are on the gas network³. The use of natural gas in boilers is seen by many as the most affordable and reliable way to provide heat and hot water for their homes. Gas heating systems are viewed as a responsive and easy to use heating technology by the majority of people. It is the yardstick by which many other heating technologies are measured.

But meeting the net-zero target will require a wholesale shift away from using natural gas to heat homes. Gas boilers will need to be replaced with low carbon heating systems such as biomass boilers, heat pumps, hydrogen boilers and heat network connections, all of which provide a different consumer experience.

We also need to consider how we transition to these new heating technologies. Some technologies, such as hydrogen and heat networks, need a minimum number of people connected to make these options financially viable and affordable. This might mean that peoples' choice of heating systems have to be limited so that we can afford the transition to net-zero.

But to what extent do we actually choose our home heating systems today? Are we making an active choice or are we simply going with the status quo by replacing a broken down gas boiler with a new gas boiler? And is it the gas boiler we want or the experience (ease, warmth, comfort) that a gas boiler gives us?

Citizens Advice wanted to understand how consumers feel about the heating in their home. The net-zero target will require a level of intervention in people's homes not seen before. Intervention will be driven by policy mechanisms, such as planning requirements, which may reduce the amount of choice people have over the heating systems in their homes.

The government's strategy must be based around a clear understanding of what people currently value, in order to support households making this transition.

What we did

Citizens Advice commissioned research agency Collaborate to help us understand what consumers might want from a future government strategy aimed at helping households transition to a world of low-carbon heating systems.

This research asked:

- To what extent are/do consumers currently making choices about their heating system?
- How much choice do consumers want and in what areas?
- In the context of future mandation of heat, are there any elements that would be non-negotiable for consumers?
- Are there any elements of mandation that consumers would be flexible about?

The research had two elements



Evidence review and expert interviews



Deliberative consumer research



Evidence review and expert interviews

The first element of the research had two stages:



Rapid evidence assessment



Expert interviews



The first step in this research was to gather and summarise the existing evidence on consumer choice as it relates to domestic heating systems. The aim was to identify what already exists, and what is known, and the gaps in the current evidence. This helped us to shape the primary research element of the project.

This literature review used a Rapid Evidence Assessment (REA) approach. This is a tried and tested approach that is structured and rigorous but less time consuming than a full systematic review. In total over 50 sources were reviewed and 41 of these were identified as having some relevance to the project brief.



The literature review was then followed up with interviews with experts at National Energy Action (NEA), Centre for Sustainable Energy (CSE), University of Exeter's Energy Policy Group and Energy Savings Trust (EST).



Deliberative consumer research

The consumer research had two stages



4 focus groups with non-adopters



6 interviews with adopters

Focus groups

The 4 workshops lasted 3 hours and used a range of techniques to capture participants' views and build their knowledge of the future, including of decarbonisation targets (net-zero) and low-carbon heating systems.

The groups included consumers who have conventional home heating systems. Participants were split between those with:

No choice over heating system

Choice but no recent engagement

Choice and recent engagement

Recent engagement refers to households who had made a decision about their home heating in the last 2-3 years or who plan to do so in the next 2-3 months.

Within these groups, participants included a mix of higher and lower income households (annual household income of over or under £30,000)

Additional quotas were applied to ensure that workshops had a mix of gender, lifestyle, age and household composition, housing tenure, house type, rurality, consumers in vulnerable situations and ethnicity.

Workshop locations

2 workshops were held in London, 1 in Leeds and 1 in Cardiff.

The workshops and telephone interviews provided us with detailed insights from a total of 64 consumers across England and Wales.

Interviews

The 6 tele-depth interviews were with consumers who had installed a low-carbon heating system within the last 5 years. These interviews included household with a heat pump, heat network, solar thermal and biomass boilers.

The telephone interviews lasted around an hour, covering the same topics as the workshops including choice, technologies and potential mandation.



Current attitudes and choice

What people want

Evidence gathered from the REA phase and the consumer workshops showed that consumers focused on the **outcomes rather than the heating systems themselves**. People give little thought to their heating systems until they might need to change it.



I think that is something I have always had, gas. It's all we know

Cardiff, lower income, no recent engagement

Crucially, people want a **warm and comfortable home**, with a heating system that is **affordable to run** while being **responsive** (can provide heating and hot water quickly) and **reliable**.



What people get from their current heating systems

The majority of research participants had gas-fired combi boilers and their expectations of hot water and heating systems were based on this experience. The levels of satisfaction with gas were moderate to high, while other conventional forms of heating (electricity, solid fuel, LPG, oil) were all perceived to be inferior (bulky, more expensive, less responsive and/or more labour intensive). People also feel that gas has a well-established supply chain and they know they can find an appropriately trained supplier if they need it.

But even amongst those households with gas central heating, some were experiencing challenges due to the age of their boiler and/or thermal efficiency of their home.



Mine's a bit patchy, like our bedroom, which we'd like a bit cooler, is red hot. But then my daughter's bedroom next door is freezing.

Leeds, lower income, recently engaged

These suboptimal outcomes led to people having to use supplementary forms of heating and a number of consumers in vulnerable situations or on lower incomes told us that the cost of heating was something they worried about



I'm very aware of how much I spend anyway, because I'm on maternity now. My heating has changed dramatically now because I'm in a lot more.

Leeds, lower income, recently engaged

Current attitudes and choice

Making a choice

There is often an assumption that people who own their own home have made a choice about the heating system in their home. It is also assumed that people want to be able to make a choice about the specific heat technology in their home. However, in our discussions with consumers a very different, more complex picture emerged.

Many people lack choice or have no recent engagement

Many people have no experience of making a choice about their home heating system. This research intentionally sought views from people who had recently made decisions around the heating in their home and also those who had not - whether that was from inheriting old systems or because the choice was not theirs to make but someone else's, such as a landlord.



"If you're renting you generally have to go with the landlord's wishes, don't you? They don't ask you what kind you want. They'd go for the cheaper option as well. They don't quite know who they're going to have living there, so they don't want to risk loads and loads of money, do you know what I mean? So, unfortunately, it's a choice we don't really have."

London, no choice currently, higher income



"I mean mine is old, I don't know how old it could be but it's fairly old, and we've had different priorities. We've not been in the house for so long, and it's not been touched yet. I don't think it will be the next few years, unless it breaks down."

Leeds, no recent engagement, higher income.

Where choice does exist, it is very bounded

People who have recently made a change to the way they heat their homes told us:

- It is most often a **reactive, trigger-based decision**
- It is often put off until there is no other option, then it becomes a **distress purchase** that needs to be made quickly



"I did a replacement. I think I was just a little bit desperate so I just wanted it replaced. I didn't really care what was going in as long as it was functioning."

London, recent engagement, higher income

- There is a tendency to **stick with defaults** (e.g. like for like replacements) or rely on **heuristics** (familiar brands or higher price point as an indicator of quality).

Current attitudes and choice

Householders' decisions in this area are heavily **influenced by others who they perceive to have greater expertise** (such as British Gas, other installers, more knowledgeable personal contacts).



"We asked British Gas. Because one of my biggest fears was, if we got it done privately, what if it's a cowboy company? You know, do your work, it's all messed up and then you've given the money and it's not fixed. So, in the end, we just decided to go with British Gas."

Leeds, recently engaged, lower income

Gas combination boilers, as the dominant technology, are treated as a given rather than a consideration by most consumers. This might indicate that people often do not know how much choice they have available to them, even with well established technologies.



"Well I don't know if there was a choice really. I just thought there was gas and then there was electric, but heating-wise I always just thought it was gas. Because I always felt like heating is expensive."

Cardiff, no recent engagement, lower income

There are only **a limited number of active choice factors** when people make decisions about replacing gas boilers:

- Upfront cost - this can be a significant factor and has led people to take out boiler insurance to mitigate against this
- Some judgement about the suitability and quality of the boiler
- Warranties and aftercare - to maximise reliability and minimise the inconvenience and cost associated with repair

In contrast, when choosing a new gas boiler, consumers do not really consider things like ease of installation or use, space requirements, aesthetics or energy efficiency. None of these are regarded as differentials when comparing modern gas boilers. Most participants also told us that environmental concerns are not a priority for them when considering their choices about new home heating systems.



"Obviously, the environmental consideration comes after the cost and everything, so, if it's a little bit more unfriendly then it's something you could live with, I suppose."

Cardiff, no recent engagement, lower income

Choice in adopting low-carbon heating

People who have installed new low carbon heating technologies tend to be driven by a desire to have homes that are technologically advanced. They also tend to have incomes that are higher than average, allowing them to adopt the newest technologies. Some of these early adopters also tend to be motivated by more environmentally conscious behaviours.

Despite this, we found that there are some shared characteristics between early adopters and mainstream consumers:

- Not everyone was actively involved in choosing their low carbon heating system - one couple inherited their system when they moved into their new property
- A number of decisions were trigger-based, e.g. as part of a home renovation
- Some had fewer options to choose between as their home was off the gas grid
- Most did not choose between low-carbon options as they had limited understanding of the different options so they picked the one they were most familiar with

- Suitability for the home and cost-effectiveness (driven by running costs but also the availability of financial incentives such as the RHI) tended to have more bearing on the decision rather than environmental considerations
- Some people were highly influenced by others in making their choice e.g. seeing the technology in someone else's home or having recommendations from people they know



"Initially I didn't want sustainable heating but when I found this house it was an attractive feature and I liked the cost saving."

Low carbon adopter – biomass boiler




"I glossed over the details of it in the excitement of buying the flat."

Low carbon adopter – heat network

The net-zero transition and choice


At the time of the research, the Australian bushfires and school strikes for climate change were regularly in the news. The researchers recruited participants with a range of different environmental viewpoints. However, only one or two people spontaneously mentioned the net zero emissions targets without prompting. Others expressed considerable surprise that this target has not been more widely promoted by government, especially considering the scale of the challenge.

 "You can get electric cars now and stuff like that. It seems to be moving a lot quicker whereas the heating, I haven't heard a lot about that."

Cardiff, no choice currently, low income


In addition to surprise, there was some concern about how achievable the target is, given the scale of the challenge and skepticism that there would be the political will to see it through.

Despite this most consumers are supportive of moving in this direction. A number of people spoke of feeling a moral obligation to be more environmentally friendly, often referring to being motivated by their children or grandchildren.

 "Maybe not so much with your kids but certainly with your grandkids, they're stuffed. They're not going to have enough food, enough water, and they're not going to have air to breathe. So, we have no choice but to really face up to where this is going on."

Cardiff, no recent engagement, lower income

The prospect of the low carbon transition not being consumer-led, and that consumers may not have choice in the matter, was raised spontaneously in each of the workshops, suggesting that some type of mandation is intuitively foreseen by some people.

 "I don't think we'll have a choice. I think whatever we're told to do, we'll have to do. That's the way it works, right? The Government are saying by 2050 we've got to be this, and in order to do this we've got to do that, and we go along and do it because that's just the way it is. There'll be rules set, parameters set that we have to adhere to."

London, recently engaged, higher income

Some mandation parallels were also spontaneously identified by respondents (e.g. phasing out of diesel, smart meter rollout and a couple also mentioned our previous transition to mains gas) – implying that a mandatory shift to low carbon heat might not be regarded as unprecedented.

Let's talk about mandation

Initial views

People had mixed reactions to the prospect of specific heating systems being made mandatory. Some consumers hate it on principle - they generally did not like the idea of being forced to do something. Others noted that, as a nation, we are consistently told we have a choice and actively encouraged to shop around for things like broadband, TV, telephone and energy suppliers.

Some people mentioned a comfort in being led in a specific direction - a feeling that they would be less likely to make the wrong decision. There was also widespread concern about the potential impacts on those who would struggle to afford these new heating systems.

When considering the potential for heat zoning i.e an area-based approach to the heat technology options available, some people felt positive, highlighting the potential for bulk purchase schemes and area-wide installation that could reduce costs and make the process of change easier than it might otherwise be.

Consumers also highly value access to locally based expert advice on low carbon adoption.

Risks

People were also concerned about the potential risks of an area based approach:

- The creation of a postcode lottery, with better options available in some areas than others
- The view of the 'right' local approach might not be right for all households in the area
- Any problems with bulk purchase and installation could affect everyone in the area
- Some technologies were viewed as having their own special circumstances and concerns. This included potential safety concerns about hydrogen networks or long-term lock-in, price increases and poor service with heat networks.

Key principles

If certain heat technologies are to become mandatory, people feel that a number of 'key principles' should apply:

- **The approach should be phased rather than immediate.** This allows the installation of low carbon heating technologies to be timed to coincide with the need to replace a boiler
- **There should be some level of choice.** People feel that more than one low carbon option should be available, with options available at different price points to suit peoples homes and budgets
- **There should be incentives to encourage people to install low carbon heat technologies.** People feel that incentives, as opposed to just penalties, are needed

Early communication will be vital

The way people react to any policy that curtails their freedom to choose what is in their home will be heavily influenced by:

- how convinced they are of the wider benefits of and imperative for change
- their view of the government's commitment to the transformation process, as well as their own ability to plan for and effectively manage this change
- their confidence in the technologies and their suitability and reliability for consumers; and
- how prepared they feel for the adoption process

This in turn will depend on how well, and how far in advance, the government and others explain why the changes are needed, how the new technologies will work compared with gas, and how the transition will be managed.

It is widely accepted by organisations and people alike that there needs to be a comprehensive public education campaign to explain why these changes are needed and why there won't be much of a choice of energy systems in the future.

"I'd just need educating on the whole subject because it just feels so foreign to me. I don't really understand it all.



I feel a bit overwhelmed at the thought of it, to be honest."

Leeds, recently engaged, lower income

The reaction of participants in this research suggests that both the framing and language used in any campaign will be important. In the context of limited choice, consumers want to feel good about doing something, rather than feeling forced. There may be an opportunity to motivate consumers using prosocial behaviour and being part of a wider movement for change.



"I would suggest that you avoid saying things like mandatory directive. They should use language like encourage and even though they might end up mandating and directing, if you start off with telling people what to do they go: 'no, you're not'."

Leeds, no recent engagement, higher income



"It's got to be clear and it's got to tell me how it's going to make a difference. I know it's going to save the environment, I get that. But, and this is going to sound a bit selfish, what am I going to benefit from changing this?"

Leeds, recently engaged, lower income

Expert stakeholders support this view, with one commenting that "the narrative should be reframed from choice to protection".

Government will be expected to mitigate risks

If low carbon heat options are made mandatory, consumers will expect government to minimise any risks that they might be exposed to. This includes any changes to their homes that will also need to be made. The key areas people told us where they'd expect government action are:

- Financial - provide consumers with sufficient financial support to help offset any high upfront costs
- Advice - provide access to expert impartial advice and information to help consumers understand and make informed decisions
- Protection - ensure there are robust consumer protections in place for low carbon heating technologies to reassure consumers having to make these changes (e.g. service guarantees, price controls)



"Is it reliable? Tried and tested? What support is there if it goes wrong?"

Leeds, no recent engagement, higher income

Furthermore, a key theme that emerged consistently throughout the research was that the fuel poor and people in vulnerable circumstances should have extra protections. Workshop participants felt that these groups should not be worse off as a result of the low carbon transition.



- Financial incentives and support
- Expert and impartial advice
- Robust consumer protection

Consumers will want to retain control in some areas

People want to retain some control over the heating systems in their homes. Key to this is the desire to feel that they have chosen a heating system that is suitable for their own personal needs and not just the one that is available in their local area. People also told us they want to have control over when they change to a new low carbon heat system.



"I think we all need to be told we've got to do it, but it's just having different choices that suit our needs and our financial situations, you know?"

London, no choice currently, higher income



"Being able to choose the cost that suits you. You don't want to be forced into an option where you are financially worse off or between a rock and a hard place [e.g. choosing between cost of adoption or a tax for non-adoption]."

Low carbon adopter

People who did not have control over the heat system in their home wanted to feel reassured that:

- The costs of implementation will not be unfairly passed onto them
- They will not receive unsuitable or unreliable systems
- There will be efforts made to minimise disruption and explain new systems so they are easy for them to use



References

1. Committee on Climate Change (2019), **UK Housing: Fit for the future?**
2. Citizens Advice (2020), publication forthcoming
3. ENA, **Gas Fast Facts**

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