The Institution of Engineering and Technology

IET Green Preferences 2020 Survey

Understanding public attitudes to green technology

theiet.org/sustainability-climate-change

IET Green Preferences 2020 Survey is published by the Institution of Engineering and Technology.

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1. Executive Summary

Climate change is a significant long-term issue for our planet. The responsibility to drastically reduce our impact on the climate rests on government, industry, and all sections of society. Finding workable solutions for tackling climate change, is without doubt, the most difficult and important engineering challenge of our time.

This Institution of Engineering and Technology (IET) survey is based on research we commissioned, and was conducted by the independent market research agency, Opinium, in 2020.

The survey reveals the public's perception regarding the need to make changes and trade-offs to reduce emissions, where responsibilities for direct action are perceived to lie, and what our greatest barriers to change are. Written with national and local policymakers in mind, the aim is to understand the public's attitudes to green ideas and technologies. For further details, please refer to the introduction section of this report.

This survey covers current climate change and sustainability challenges, active and passive actions influencing lifestyle changes, attitudes towards green technology in the home, the influence of COVID-19 and lockdown and more. The report found that that the awareness of climate change and the threat it poses is widespread, with the majority of the population conscious that significant changes will have to be made to their lives and the lives of future generations. Additionally, there is an understanding of what those changes to personal behaviour and living environments could be, through an active take-up of more passive actions, such as council-driven recycling. However, pragmatic reasons, such as cost and convenience, still present significant barriers to increasing the uptake of green technology, which far outweigh environmental concerns as a driver for making active change.

The results of the survey have been split into three categories:

- personal impact and green behaviours
- household
- transport, travel and logistics.

Personal impact and green behaviours looks at public perceptions of personal carbon footprint and current green behaviours.

- On average, around 8 in 10 UK adults often or always recycle plastic, tins, and paper materials.
- Only half of UK adults often or always report recycling food waste (51%) or batteries (54%).
- When presented with a list of more active approaches to recycling, the reuse of bags ranked highest among respondents, with just under 9 in 10 respondents (87%) identifying this as their principle active-recycling behaviour.
- Younger people tend to engage in more active recycling behaviours on average.
- When older people outperform the younger demographic, their active behaviour arises as a result of personal responsibility.
- The largest differentials between the 18–34 and 55+ age ranges are observed in eating less meat (40% vs 22%) and choosing to avoid buying fruit or vegetables that are shipped from other counties (41% vs. 27%).

Household reveals the current profile of the UK housing sector, looking at the key barriers to adopting green technologies in homes and how perceptions have shifted since the start of the COVID-19 pandemic.

- There are significant regional differences between those on green energy tariffs (49% in the East Midlands compared to only 13% in Northern Ireland)
- Home insulation is recognised as being the most effective way of minimising an individual's carbon emissions.
- Four in ten UK adults have not heard of battery storage for homes.
- The most common reason for making changes to homes is to save money rather than to reduce carbon footprints.
- Less than a third (30%) of renters would consider asking their landlord to install measures to improve the energy efficiency of their home.
- Half of respondents (47%) have noticed problems (things that need fixing/updated) with their home since lockdown.

Transport, travel and logistics showcases current attitudes and preferences for personal transport in the UK, behaviours influencing holiday travel and the impact of COVID-19.

- Around 9% of those surveyed own an EV/hybrid electric vehicle.
- COVID-19 appears not to have impacted people's expectations of how they will make journeys once they are able to again.
- Those aged 35–54 (67%) are more likely to rent an EV to reduce their carbon footprint than 18-34-year olds (60%).
- 50% of respondents said they would have a holiday in the UK in the next three years, but only 18% of them cited carbon reduction as the reason.
- Cost, speed and convenience of the method of journey are more important than reducing carbon footprint.
- There is much more openness to making a greener choice when it comes to deliveries.

Please note that the views expressed in this publication are not necessarily those of the IET. It is not intended to be a definitive strategy to solving the challenge of climate change, but rather seeks to add understanding and debate around the topic.

We are seeking to understand how best to accelerate the pace of change towards net-zero, using technology, efficiency and behaviour change as essential drivers to achieve this. We hope these insights provide a valuable snapshot of the UK population at the current time and welcome any comments you may have. If you would like to discuss any of these results in further detail, please contact us at sep@theiet.org

2. Recommendations

In June 2019, parliament passed the Climate Change Act requiring the Government to reduce the UK's net emissions of greenhouse gases by 100% (prior to this it was 80%), relative to 1990 levels, by 2050[1]. Doing so would make the UK a 'net-zero' emitter.

If the UK is to meet its net-zero ambition, action will have to be taken across Government, industry, and all sections of society.

No single solution or approach will be enough, with a combination of innovative technology, improved efficiency and behaviour change being essential drivers to accelerating the pace of change. Ensuring that the public is an engaged part of the process will be vital to developing workable solutions to address some of the most difficult challenges, such as decarbonising heat and transport.

Based on the results of this survey, we have highlighted several key action areas:

1. Practical guidance regarding the UK's climate change ambitions

While the understanding of climate change is high, the knowledge of the UK's climate change ambitions to 2050 and intervening policy decisions are not.

Considering the effect that these measures are likely to have on everyday life, it is apparent that more needs to be done to give practical guidance on these targets, as well as putting them into context with the urgency and scientific reality of climate change.

2. Improve installation support and advice for the uptake of green solutions

Many of the emission-reducing improvements required for the existing housing stock in the UK have seen the responsibility pushed onto the consumer — both in how different solutions are understood and how they interact with each other.

Greater support and advice must be available for consumers to understand the home as a whole entity, rather than only adding individual components which may not be the most cost or carbon-effective solution.

3. Ensure excellent standards of professionalism to build and maintain public trust

The UK cannot afford for the public to lose trust in technological solutions that combat climate change, so it is essential that an excellent standard of installation, maintenance and safety for green technology is demonstrated at all times.

Green technology must be reliable, timely and prove its value in both the short and long term. We are committed to promoting professionalism and encourage ethical behaviour in the practice of science, engineering and technology by all stakeholders.

1 https://commonslibrary.parliament.uk/research-briefings/cbp-8590

4. Support innovation and drive down costs

The UK Government, industry and academia must continue to support innovation in the field of science and engineering to ensure that technology can continue to provide improvements in efficiency and cost.

Additionally, innovation in pragmatic, low-carbon solutions for consumers such as electric vehicles and solar panels must continue unhindered.

5. Think in the long term

Most people surveyed thought their children or grandchildren would be most affected by climate change.

Addressing climate change is an issue that far exceeds the term of a single government. The public must be confident that they can make decisions that affect their lives on longer timescales. It is also essential that the longer-term impact of any new technologies and innovations are considered. However, resilience, adaptation and ethical implications on future generations must also be factored into any long-term strategy. It is vital that the UK Government works with opposition parties to create ambitious long-term and sustainable goals.

6. Actively identify opportunities for incentivised behaviour change

The UK Government should learn from the relative success of standard household recycling and the plastic bag tax to identify further opportunities that will enable consumers to transition to greener lifestyle choices.

For example, the younger generation of renters demanding greener products and services presents an opportunity to incentivise private and public landlords to retrofit properties with sustainable technology.

7. Promote a green post-COVID-19 recovery

It is essential that the economic recovery from COVID-19 is a green recovery.

As people spend a greater time at home and consider the amount they travel, industry and leaders should encourage the public to adopt more green technology solutions. Support for programmes which provide more technical education, jobs and are ready for delivery, such as the retrofit schemes announced for home insultation2, must continue and be delivered to the highest possible standard.

2 https://www.gov.uk/green-deal-energy-saving-measures

3. Introduction and methodology

As a representative voice of engineering, we know that engineers have the skills, insights and ingenuity to help tackle climate change in ways that optimise efficiency, economy, safety and reliability. But these challenges cannot be addressed alone and without the backing of people across society.

Ambitious targets have been set to reach net-zero emissions by 2050 in the UK. Achieving these will require changes to our behaviour, the spaces we live in and how we travel. As engineers, innovators and technologists, it is our responsibility to ensure that new technology is fit for purpose, provide solutions for reaching net-zero and continue to improve our standard of life.

We are seeking to understand how best to accelerate the pace of change towards net-zero and help drive essential technology, efficiency and behaviour changes. We hope these insights provide a valuable understanding of the UK population and prompt significant action.

We commissioned independent market research agency, Opinium, to conduct a nationally representative survey that asked members of the UK population about their environmental behaviours, attitudes and understanding to some of the most immediate and readily available green technologies[3]. The survey achieved 3,337 responses in the UK from those aged 18+. Additional surveying was undertaken in Australia, China, Germany, India, the UAE and USA — sample sizes of between 400–1,000 were achieved for these markets. Fieldwork was conducted between the 15th July 2020 and 7th August 2020.

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3 Green technologies use science and technology to create products that reverse the negative effects of human activity on our planet.

4. Understanding climate change

The UK population understands that climate change is worsening and believes there is still time to address the most serious challenges facing society, but only through radical actions.

4.1 Climate change and sustainability

Facts and figures about perceptions of climate change and sustainability.

Is climate change an issue?

87%

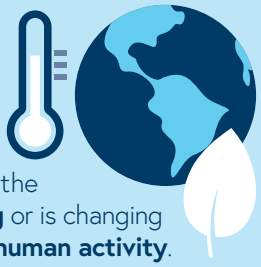
of **UK adults think that the climate is changing**, with **human activity** being solely or partly responsible.

Compared internationally, this is on par with

Australia **(84%)**, higher than the USA **(77%)**, but lower than Germany **(91%)**, India **(96%)**, China **(94%)** and the UAE **(95%)**.

7%

of the **UK population** surveyed **believe** that the climate is **not changing** or is changing but **not as a result of human activity**.



Compared internationally, this is on par with

Germany **(6%)**, lower than the USA **(14%)** and Australia **(12%)**, but higher than India **(4%)**, China **(4%)** and the UAE **(5%)**.

Can we prevent climate change?

57%

of **UK adults** think that we can **avoid the worst effects** of climate change, but **only by making radical changes** to how we **live our lives.**

Worryingly, **one in ten** of **all respondents** aged 18-34 believe it is **too late to avoid the worst effects** of climate change and we should not try to prevent them **(9%)**. A comparable proportion of respondents aged 55 and over believe the **climate will correct itself** without human action (8%), highlighting somewhat of a **generational disconnect** to the issues at hand.

Only 18% of **UK respondents** feel it will be **their generation** that will **see noticeable change** to their day-to-day life while comparatively, **emerging economies** are more likely to **expect consequences to arrive in this generation** – China **(35%)**, India **(39%)** and UAE **(40%)**.

Despite this disconnect and regardless of which generation asked, it is apparent that UK respondents believe that future generations will bear the weight of noticeable day-to-day impacts of climate change, with Millennials (born 1981-1996) or Gen-Z (born 1997-2012) expected to be the first to experience noticeable change as a result of climate change.

4.2 UK policy and responsibility

Facts and figures about the share of responsibility in addressing climate change.

Who is responsible for addressing climate change and making changes to prevent it from getting worse?

UK adults place around a

quarter of total responsibility

with their **national Government (23%)**, two fifths of responsibility with **business and industry (18%)**, a similar proportion of responsibility at the **individual level (16%)** and on **global bodies (16%).**

Respondents place

10%

of **responsibility** on **science and technology.**

Local government ranks the **lowest of all bodies** presented with respondents placing **less than 10% of total responsibility** in these institutions **(8%)**. This appears to **contradict pressure for local councils and authorities** to declare **climate emergencies** when they are **considered to have the least responsibility** to address these issues.

These findings indicate that national government is seen as the main enabler for change and holds the principal responsibility to provide leadership to other areas. This finding is reinforced with the revelation that only 10% of total responsibility is apportioned to science and technology, despite both holding the power to innovate, deliver infrastructure and find solutions to combat climate change.

Whose responsibility is it to address climate change

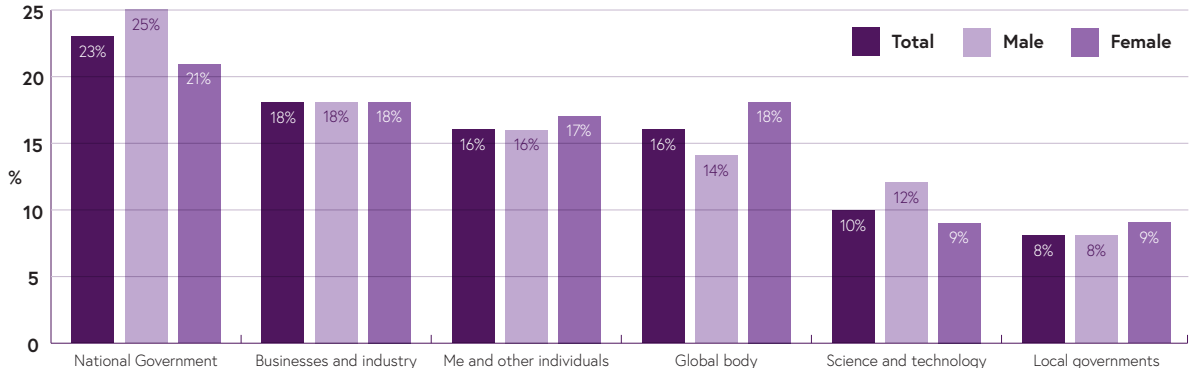


Figure 1: How much responsibility do you feel each of the following has for addressing climate change? (e.g. making changes to prevent it from getting worse?) Base size (All UK respondents): 3,337.

Despite the majority of respondents considering the principal responsibility lying with national Government, only around half of those polled were able to correctly identify UK net-zero emissions targets by 2050 (49%), and the Government's phaseout date of 2035 for new petrol and diesel vehicles (48%).

Looking at global targets, only 3 in 10 correctly identified general United Nations (UN) goals to mitigate climate catastrophe by 2030 or specific UN goals to halve carbon pollution by 2030 to prevent said catastrophes.

Considering the effect that UK policy measures are likely to have on the lives of the public, as well as the impacts of climate change, it is apparent that more work needs to be done to communicate the urgency and scientific reality of climate change.

5. Section 1 – Personal impact and green behaviours

In this section we look at:

- **Public perceptions** of personal carbon footprint and current green behaviours. We built a profile of the UK prevalence of both passive and active environmental behaviours, and the demographic differences.
- **Passive behaviour** has been characterised as activities which have become part of recognised environmentally friendly practice. For example, recycling plastic, tins and paper materials, which for the vast majority of the UK population is collected by the council, either at home or close by.
- **Active behaviour** has been characterised as a change in an individual's behaviour or the undertaking of specific activities for environmental reasons. For example, changing diets to reduce or remove meat or actively seeking out products which use less or recyclable packaging. A good comparison in terms of recycling would be for food waste recycling, where significant regional differences in collection mean that it is passive behaviour for some and would be considered active for others.

5.1 Understanding carbon footprint

In benchmarking UK respondents' estimates of their emissions against that calculated by the Committee for Climate Change, it is apparent that household understanding of home heating and transport emissions are very realistic — showing increases in home heating emissions and decreases in transport emission that are in line with projected estimates. However, the 10-percentage-point increase in estimated electricity emissions against the 2014 projection (in what should be a downward trend) illustrates that there is a poorer understanding of how electricity is produced on a national scale.

Estimated % of carbon footprint, survey estimate compared to The Committee on Climate Change estimate

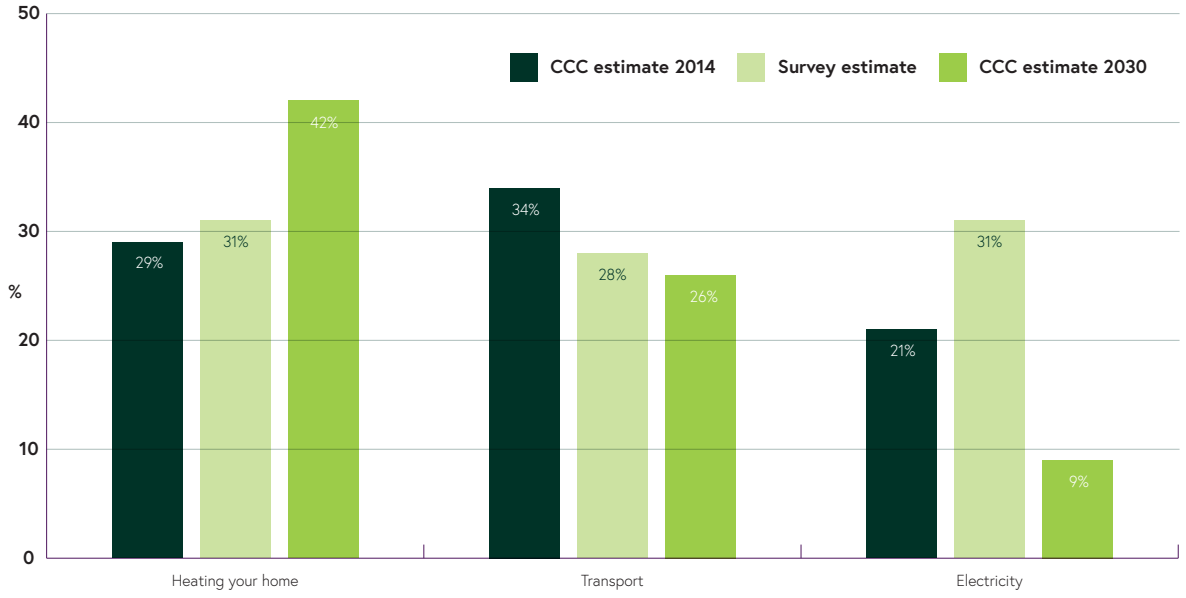


Figure 2: Thinking about your household's total carbon footprint, approximately how much of that do you think comes from the following? Base size (All UK respondents): 3,337.

5.2 Active and passive actions impacting lifestyle changes

With UK adults placing themselves and other individuals as holding around two-fifths of the responsibility to address climate change, we can conclude that there is an understanding that individual choices and lifestyles have an impact on the climate.

Using answers to questions about recycling and food, we considered 18% of UK adults to be engaged in active environmental behaviour — with their profiles tending to be slightly younger, urban and working.

Facts and figures on recycling:

- When looking at recycling behaviours, traditional recyclables often collected from the house have a significantly higher uptake.

On average, around

8 in 10

UK adults often or **always recycle plastic, tins** and **paper materials**.

51%

of UK adults report that they **often** or **always recycle food waste or batteries**.

- Higher proportions of people report that they are not able to recycle food waste **(15%)**, as bins or picks up for this waste category are not available in their area.

Unsurprisingly, the introduction of a **financial penalty on plastic bags** means the **reuse of bags** ranked highest among respondents, with just under

9 in 10

respondents **(87%)** identifying this as their principal active recycling behaviour.

When presented with a list of more active approaches to recycling, the majority of respondents **engage in active behaviours**, focusing on reducing new plastics and **personal responsibility** for plastic waste, demonstrating the effectiveness of **consistent campaigning around plastic waste and the ocean.**

- Younger people tend to engage in more active recycling behaviours on average. Common active behaviours include investment in reusable water bottles (**61%** of 18–34-year olds compared to **40%** aged 55+) and purchasing items from shops which have reusable or recyclable packaging (**56%** of 18–34-year olds compared to **53%** aged 55+).

When older people do outperform the young, active behaviour tends to be **driven by personal responsibility**. Almost all those **aged 55+ take their own bags shopping** (**97%** compared to **72%** aged 18–34), while **8 in 10 choose to hold onto their recyclable waste** until they can find an appropriate waste bin (**80%** compared to **67%** aged 18–34).

- As expected, the younger population show the most desire to convert to ethical food consumption. In the 18–34 and 55+ age ranges, eating less meat **(40% vs 22%)** and choosing to purchase locally-sourced fruit and vegetable produce **(41% vs 27%)** proved to be the biggest differentials. Similar to plastic use, this could be seen as a result of successful social campaigning, increased engagement in reducing meat consumption, and the growth of vegetarianism and veganism.

6. Section 2 – Household

In this section, we examine the current profile of the UK housing sector, as well as current perceptions and understandings of carbon-emission improvements that can be made to homes. We also highlight the key barriers to adopting green technologies in homes and look at how perceptions have shifted since the start of the COVID-19 pandemic.

6.1 A profile of the UK:

- **65% of the UK population are homeowners**. Homeowners are more likely to be older and have children under 18, while renters are slightly more likely to be women, younger, without children and from urban areas. Homeowners are also slightly less likely to be in work than the UK average.
- **34% of UK households report they are currently on a green-energy tariff**, however there is a significant proportion (26%) that do not know. Those living in an urban area (45%) and engaging in other active environmental behaviours, such as changing diets for ethical reasons (54%), show a greater preference for green energy tariffs.
- **There are significant regional differences between those on green energy tariffs,** with the East Midlands leading the way (49%), compared to only 13% in Northern Ireland — most likely due to availability and prominence of local energy companies in certain regions.
- **When asked more about their current behaviour at home, seven in ten (69%) UK adults would rather put on a jumper than turn the heating on.** Older people (72% of those aged 55+) are slightly more likely to do this than younger people (65% of those aged 18-34). Interestingly, electric and hybrid vehicle owners are almost equally split between putting on a jumper and turning the heating on (54% would put a jumper on).
- **When it came to washing clothes, the population is split fairly equally between those who would use a longer eco-wash (49%) and a shorter normal wash (51%).** A shorter normal wash is preferred by women (57%) and those aged 55+ (58%) are much more likely to use an eco-wash.
- **Home insulation is recognised as being the most effective way of minimising an individual's carbon emissions (44%).** Generally, investment in greener technologies like solar panels (35%), upgrading inefficient appliances (see boilers at 32–29% in figure 3) and smarter appliance use rank highly among participants. Only two in ten believe smart controls (19%) and smart meters (17%) might aid them in their desire to minimise carbon emissions.
- However, this is felt less by the younger respondents. **The support for home insultation swings significantly more towards the older members of the population (34% aged 18–34 vs. 56% aged 55+)**. Analysis of sub demographics shows that homeownership is the key reason for this bias.
- The difference between the public's faith in green energy plans (34%) and smart controls shows that **more must be done to educate the population on the green benefits of smart technologies**.

Most likely ways to minimise an individuals carbon emissions

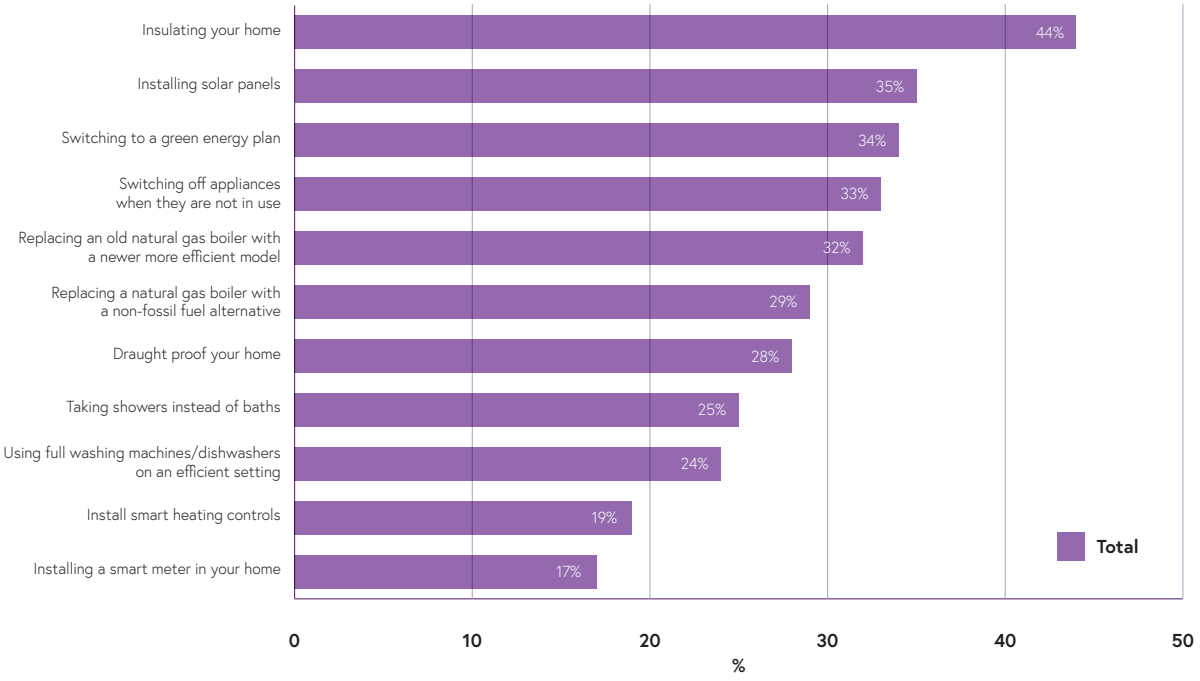


Figure 3: Which three of the following do you think would be most likely to minimise an individual's carbon emissions? Base size (All UK respondents): 3,337.

6.2 Attitudes towards green technology:

– Overall, UK adults say they have a better understanding of more long-standing green technologies (such as double glazing, insulation and draught proofing) than newer ones (such as battery storage, alternative gas heaters and heat pumps). Four in ten UK adults have not heard of battery storage[4] for homes.

Knowledge of green technologies

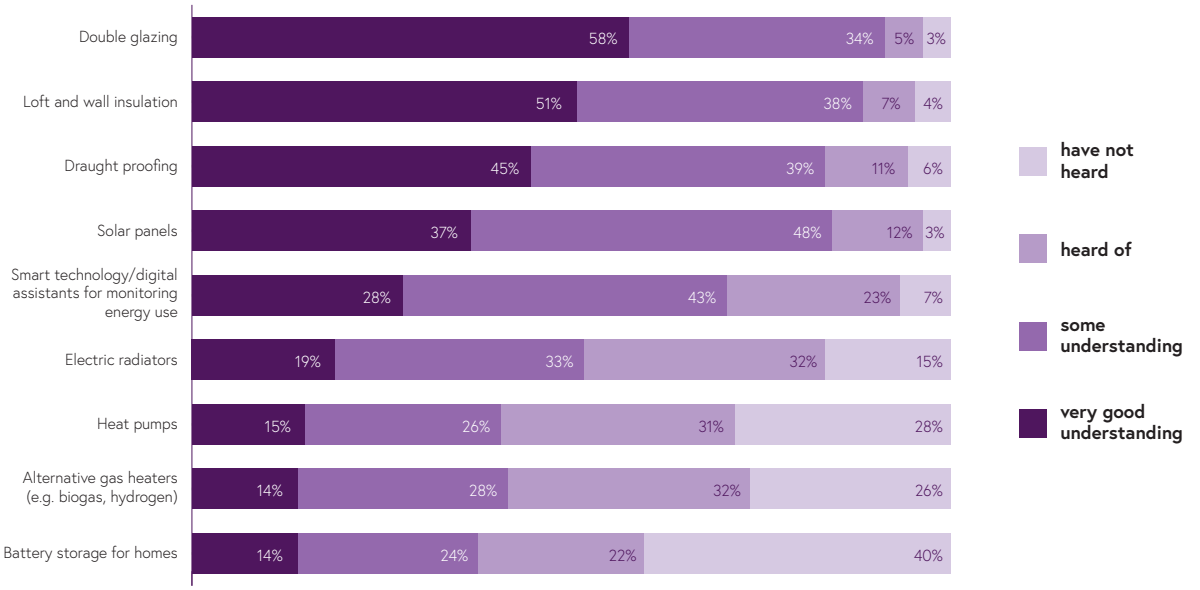


Figure 4: How familiar, if at all, are you with each of the following? Base size (All UK respondents): 3,337.

4 Home battery storage devices store electricity that is generated locally, for later consumption.

– As the least known green technology, battery storage presents an interesting case study of which demographic is at the forefront of understanding green and technological innovation. Electronic vehicle (EV) car owners are the most knowledgeable, probably because they understand charging and the battery that EV cars use. In general, men are more likely than women to say they have a good understanding and younger people tend to have a better understanding than older people.

Knowledge of battery storage for homes

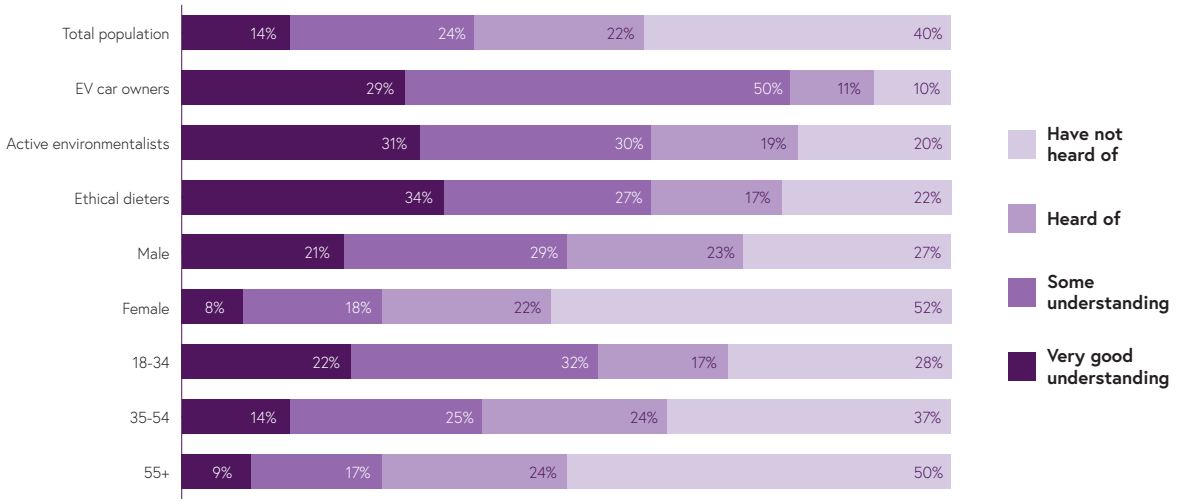


Figure 5: How familiar, if at all, are you with each of the following? Base size (All UK respondents): 3,337.

– Levels of understanding of green technology reflect actual levels of installation, with more long-standing solutions such as double glazing being the most commonly installed. When asking respondents why green technology was installed in their homes, the most common reason was to make financial savings, rather than reducing carbon footprints.

Level of installation and reasons for installing

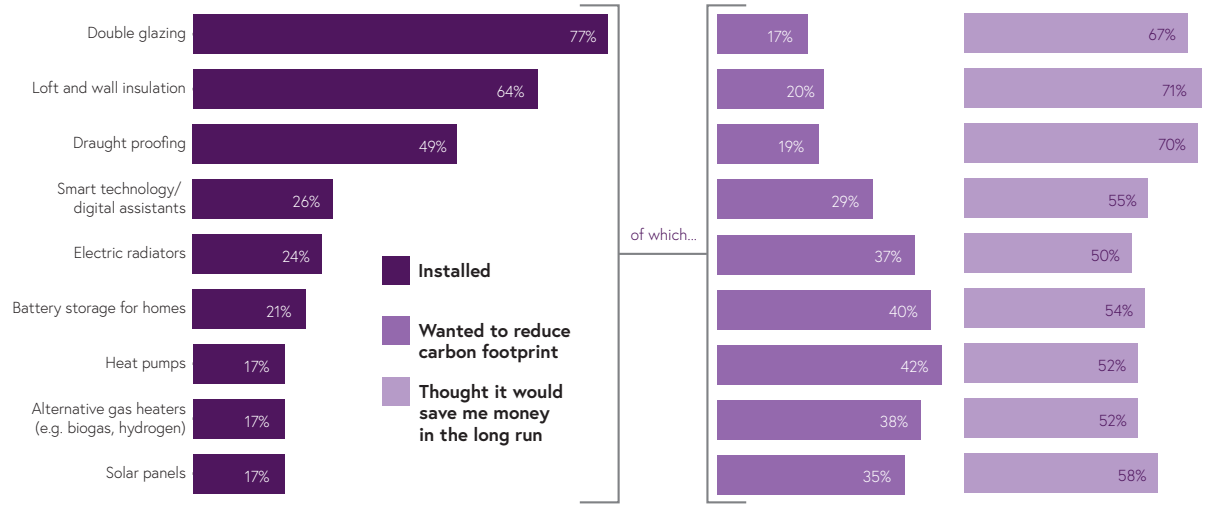


Figure 6: Which if any of the following do you have installed in your home? Base size (All UK respondents): 3,337. Thinking about when you made the choice to install the following technology in your home, which of the following were influential to your decision? Base size (All purchasers): 221-897.

– This pattern of saving money in preference to reducing carbon footprints is also seen among those who would consider installing these items in the future. However, for these people, the desire to reduce their carbon footprints is higher than those who already have them installed — potentially showing a shift in priorities as the effects of climate change become better known.

Level of installation and reasons for installing

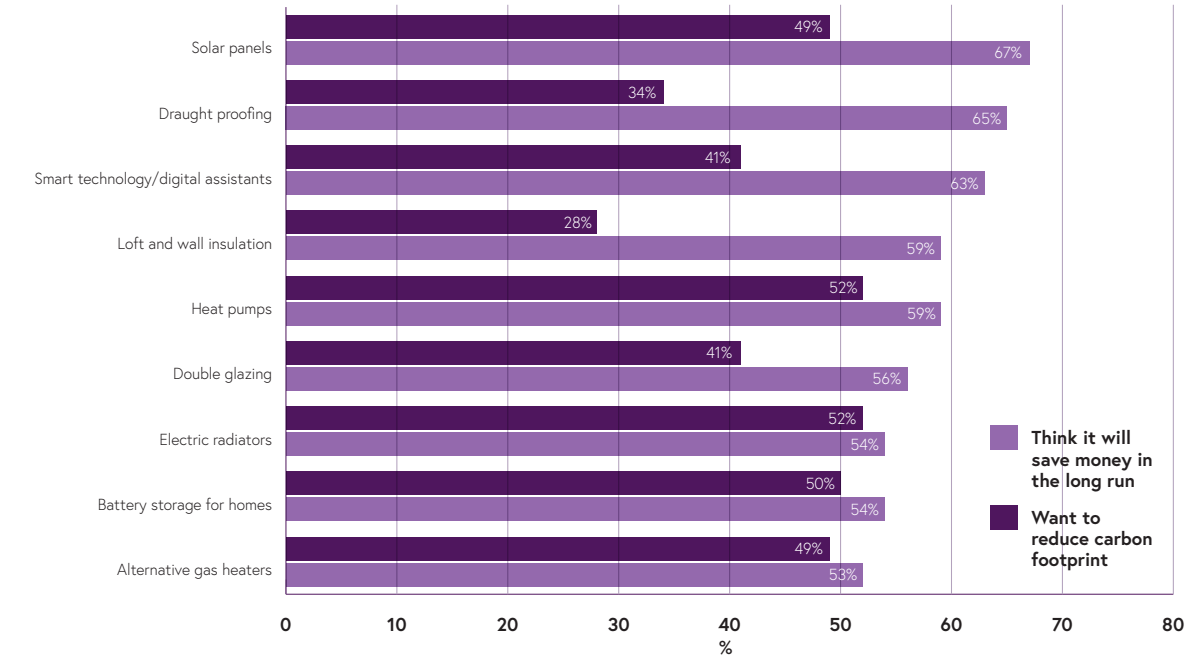


Figure 7: You said you would consider having the following tech installed in your home in the future. What are your reasons for this? Base size (All considerers): 151-567.

– Overlapping levels of understanding and future consideration among homeowners show that people are most likely to consider the more traditional energy-saving solutions, such as double glazing, insultation and draught proofing. Improving the public's understanding of battery storage, alternative gas heaters and heat pumps may increase levels of consideration in the future. This is particularly important when considering the scale of the challenge to decarbonise heating in the UK.

Understanding vs consideration

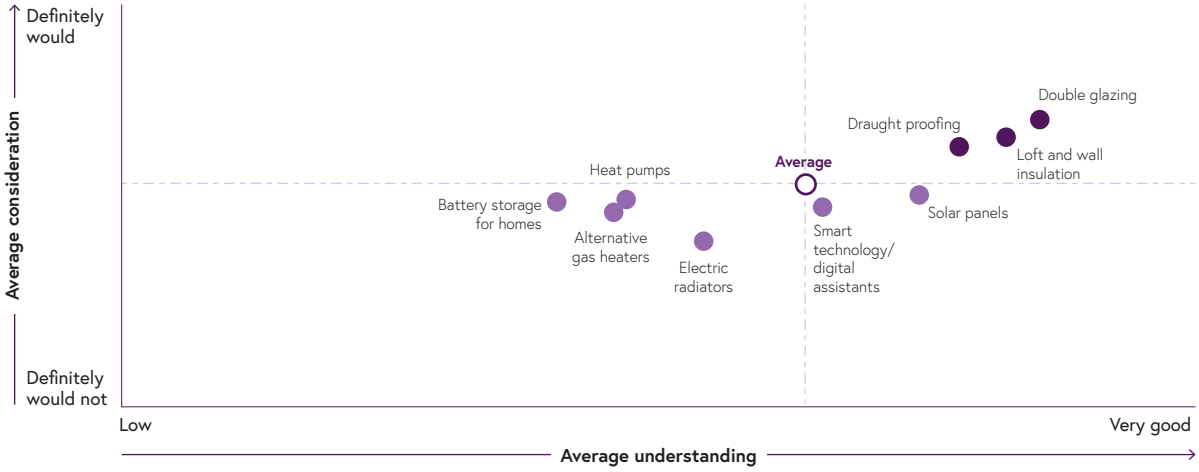


Figure 8: How familiar, if at all, are you with each of the following? Base size (All homeowners): 2,162. Would you consider having the following tech installed in your home in the future? Base size (All homeowners without this already): 117- 978.

- Renters also tend to look for the more long-standing tech solutions. To a certain extent, there is greater expectation by renters for homes to have long-standing tech solutions already installed, as opposed to newer, more innovative technology. However, if expectations on the quality and environmental credentials of homes continues to rise for younger people in urban areas, it may begin to encourage landlords to upgrade their properties.

What will renters look for in their next home?

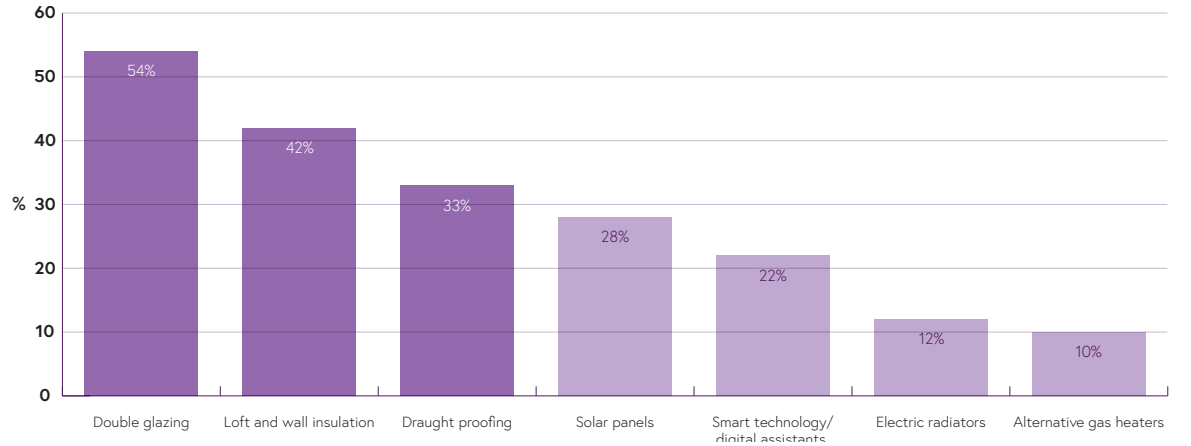


Figure 9: Which of the following will you look for in your next home? Base size (All renters): 936.

6.3 Barriers to adoption

Cost:

- Unsurprisingly, cost is the most common reason for not considering green technology in the future — with this being particularly prevalent with solar panels (46%). For the more long-standing tech solutions such as double glazing, draught proofing and insultation, the biggest barrier to adoption is that people have not thought about it or simply expect it to be there already.

Reasons for not considering in the future

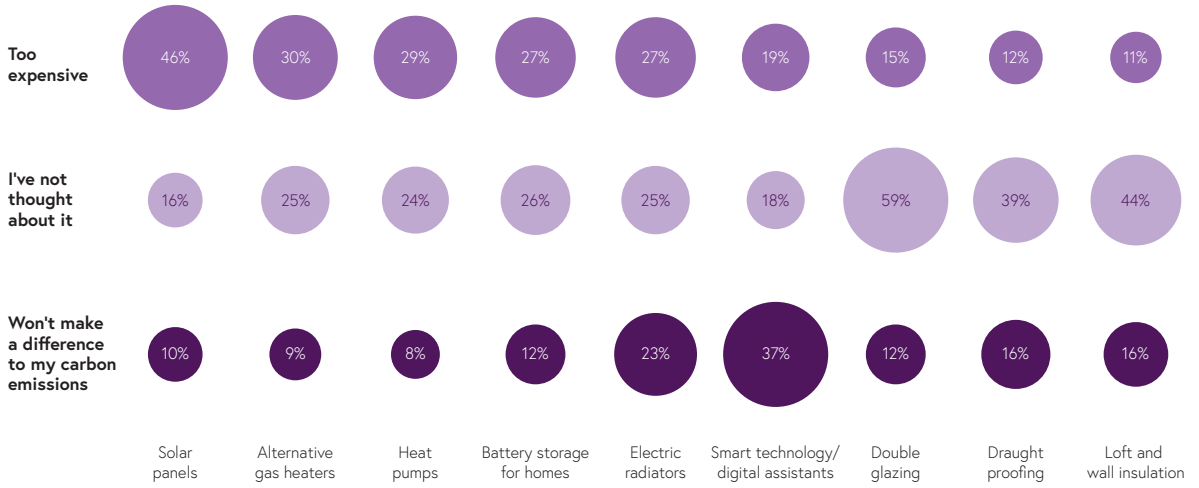


Figure 10: You did not say you would consider having the following tech installed in your home in the future. What are your reasons for this? Base size (All homeowners who wouldn't consider items): 51-681.

5 https://energysavingtrust.org.uk/blog/solar-power-right-my-home

– On average, people over estimate the cost of various green technologies. For solar panels, UK adults think it would cost over £7,000 to install the technology, with the actual figure being closer to £5,000[5].

Approximate installation cost vs actual cost

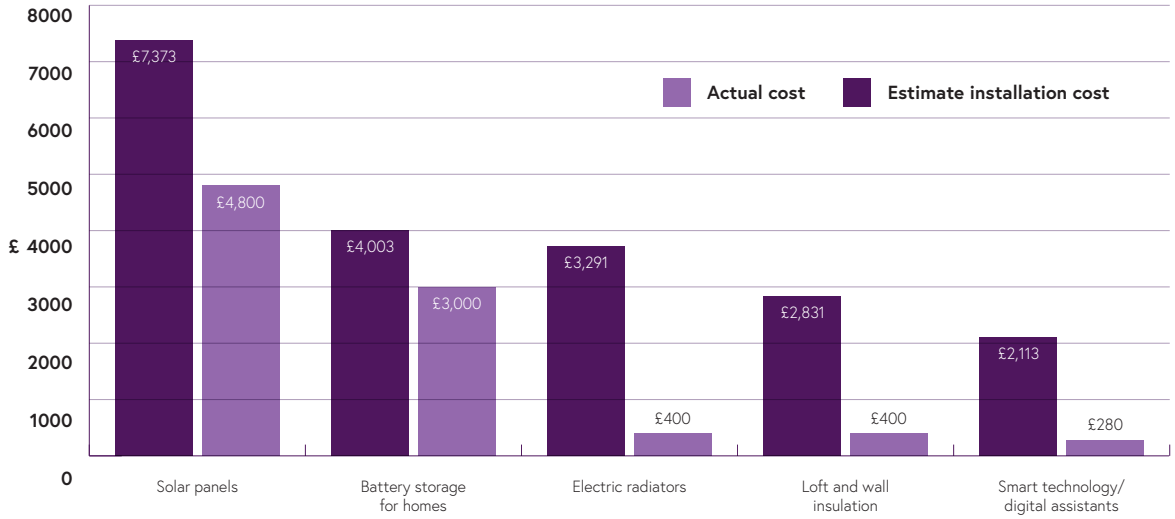


Figure 11: Approximately, how much do you think it would cost to have the following installed?
Base size (All respondents who do not have this installed): 311 – 2,258.

– There is, however, still an issue with priorities when it comes to spending money on home improvements. We asked people to allocate £10,000 across a number of home upgrades to understand the relative priorities and to some extent their expectation of costs. Upgrading a kitchen was the number one priority, with people on average allocating almost £2,500 to this, followed by installing better windows and upgrading a bathroom. Improving insulation (£984) and getting a new boiler (£962) are lower priorities overall.

How people would spend £10,000 on their home

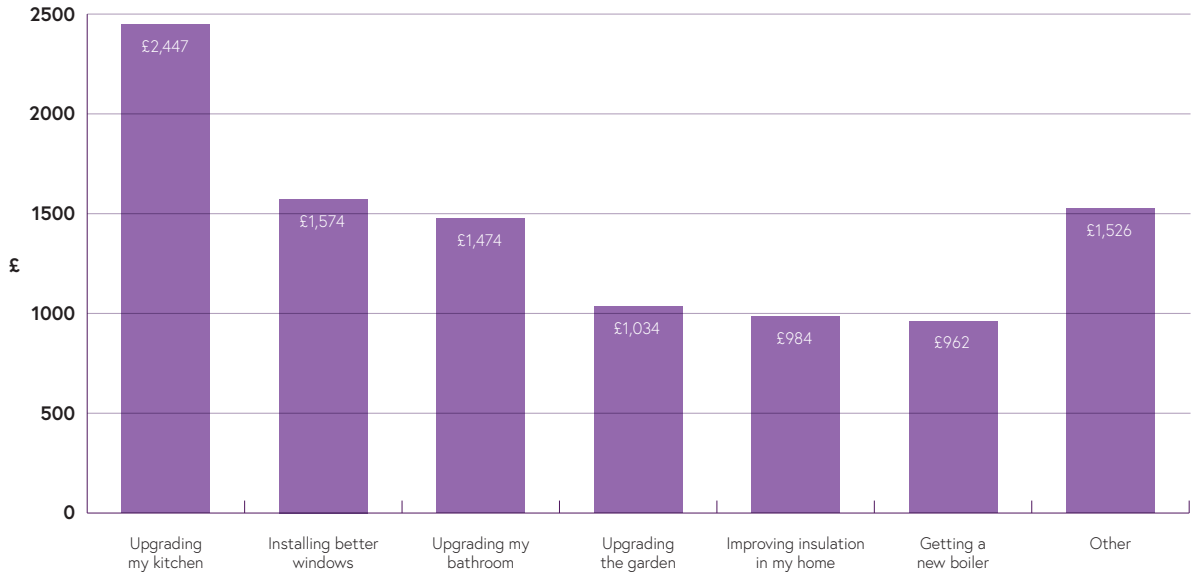


Figure 12: If you were given £10,000 tomorrow to spend on upgrading your home, how would you use that money?
Base size (All UK respondents): 3,337.

Lack of information and apathy:

- Despite the apparent link between levels of understanding and future consideration, most people indicate that they do not know where to go in order to learn more about various green technologies for the home. For example, only four in ten (39%) respondents would know where to go to find out more information about double glazing.
- However, there is a greater challenge to overcome — most people do not want to know more about green technology. For loft and wall insulation, only 34% of people know where to get further information about it, but only 4% would actually be interested in knowing more.
- More encouragingly, just over a fifth of people (22%) would be interested in receiving further information about solar panels. However, this is still far outweighed by general apathy and disinterest in finding out more about green technologies.

Finding out more

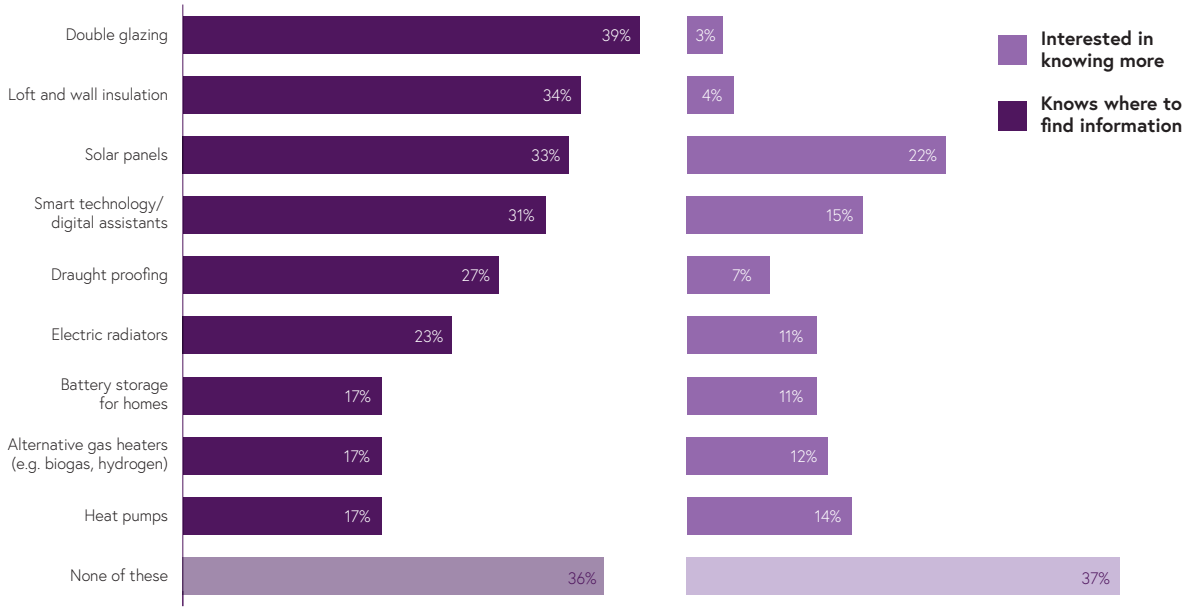


Figure 13: Of the following technology options, do you know where to find further information such as how it works and how to get it installed, and which of the options would you be more interested to learn about? Base size (All UK respondents): 3,337.

Lack of desire and ability to make change:

- When asked about the appliances they currently have, homeowners like what they are used to — with this being most evident in cooking. Broadly, people like cooking with gas, think that their appliances are efficient enough, and typically do not want to spend money on new appliances.
- In view of the significant portion of the UK population that rents (28%), there is an obvious barrier to making changes to living environments. Less than a third (30%) of renters would consider asking their landlord to install measures to improve the energy efficiency of their home.
- Additionally, only 45% of renters would be comfortable asking their landlord to make changes to their home, such as insulation, new windows or a new boiler, in order to make it more environmentally friendly. This figure drops to 39% for those aged 18–35, and those living in London, a demographic which is often the most environmentally aware and active.
- Of course, it will inevitably depend on individuals' relationships with their landlords. People who live in accommodation rented from the local authority are most comfortable asking for changes to be made (53%), with those renting from private landlords being less likely to ask (42%).

6.4 Influence of COVID-19 and lockdown

– As a result of the COVID-19 pandemic and subsequent lockdown periods, people have spent significantly more time in their homes. When asked about this, almost half of people have noticed problems with their home (47%) — mainly cracks in paint, but also damp, noise and overheating issues — all signs that insulation might be a problem.

Have you noticed problems around the home?

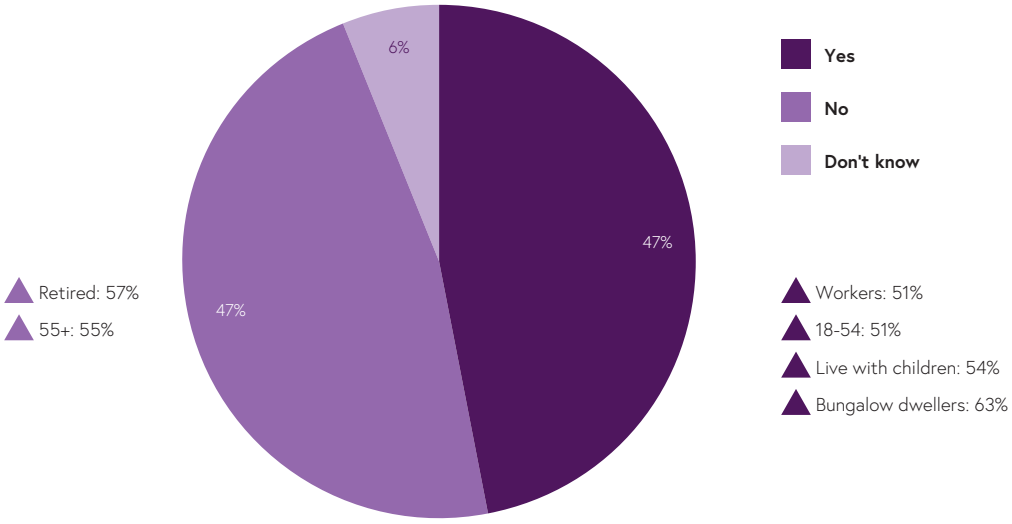


Figure 14: Having spent more time at home than you usually would have during lockdown, have you noticed any problems around your home? Base size (All UK respondents): 3,337.

– However, similar to the barriers surrounding costs and personal priorities, people are more likely to fix cosmetic issues over home-efficiency issues. Of those who have noticed problems, most are likely to do something about problems that are more easily fixed, such as paint work, a broken door or cupboard handles.

Problems noticed

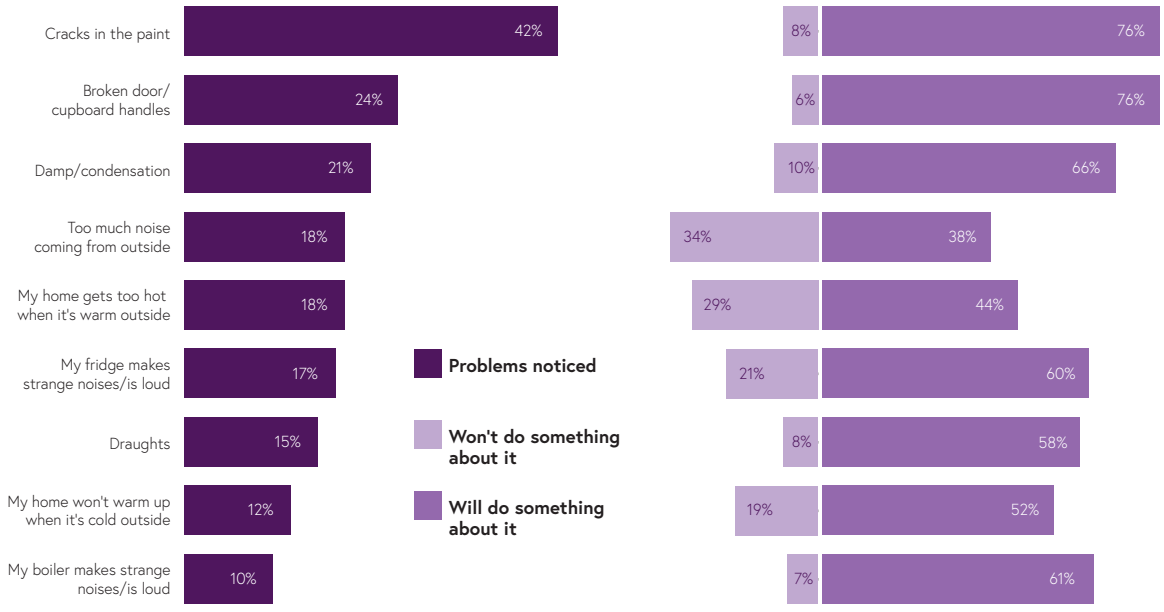


Figure 15: What problems have you noticed and are you likely to do anything to fix these issues? Base size (All who have noticed problems): 1,567. Do you think you are likely to do anything to fix these issues in the next 12 months? Base size: 160-662.

7. Section 3 – Transport, travel and logistics

In this section, we examine current attitudes and preferences for personal transport in the UK, behaviours influencing holiday travel and the impact of COVID-19. We also highlight the key barriers to the adoption of green transport technology, as well as the factors which negatively impact preferences and behaviours to drive respondents away from greener alternatives.

7.1 Personal transport attitudes:

- When we asked what comes to mind for reducing emissions through travel, respondents would focus more on personal journeys, with public transport and walking being the most common themes arising from the open-ended questions. Using electric cars and cycling were slightly less prominent suggestions and reducing the amount of time spent flying was even less so. People also brought up car sharing services (such as short-term car rentals using apps like Zipcar) too, but to a much lesser degree than the others.
- Of those surveyed, around 9% own an EV/hybrid electric vehicle and are more likely to be male, younger than the UK average, have children and be based in urban areas — with this being significantly more prevalent in London.
- Pure electric vehicle owners represent less than 3% of the population, with half being in London and the next highest proportion being in the East of England (21%). They are much younger than the population on average, have children under 18 and live in urban areas. Unsurprisingly, due to the current cost, almost all owners are currently working and more affluent.
- Driving remains the most prominent form of transport when respondents were asked to think of their behaviour before the COVID-19 lockdown. There was not a single every-day journey that people made where another form of transport was more common than driving overall. However, we did see that when going to local shopping centres or high streets and when commuting to work, driving was less common than all other methods combined.
- People make journeys using other modes of transport for pragmatic reasons, such as cost and speed, over environmental considerations.

Reasons transport other than driving is chosen for these journeys

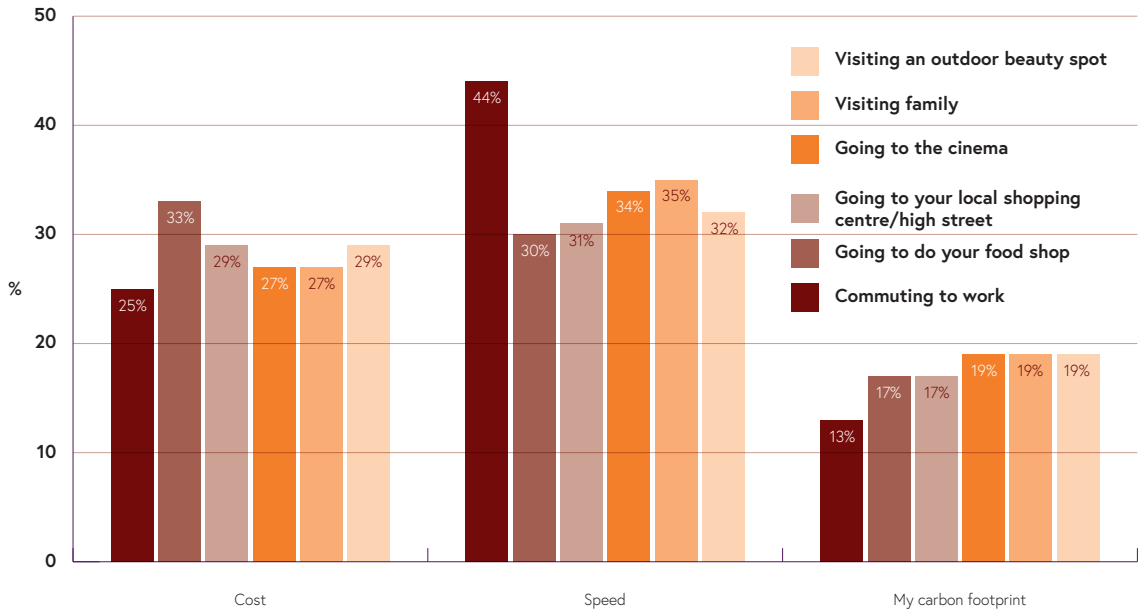


Figure 16: Which **one** of the following was most important when choosing your option for a journey? Base size (All respondents who make journeys not by car): 1,101 – 1,735.

– Encouragingly, young people are more likely to cite reducing carbon footprints as a reason to not drive for a journey, followed by 35–54-year olds and finally by 55+ year olds, who are least likely to cite this.

Their carbon footprint was a reason for choosing the transport other than driving by age

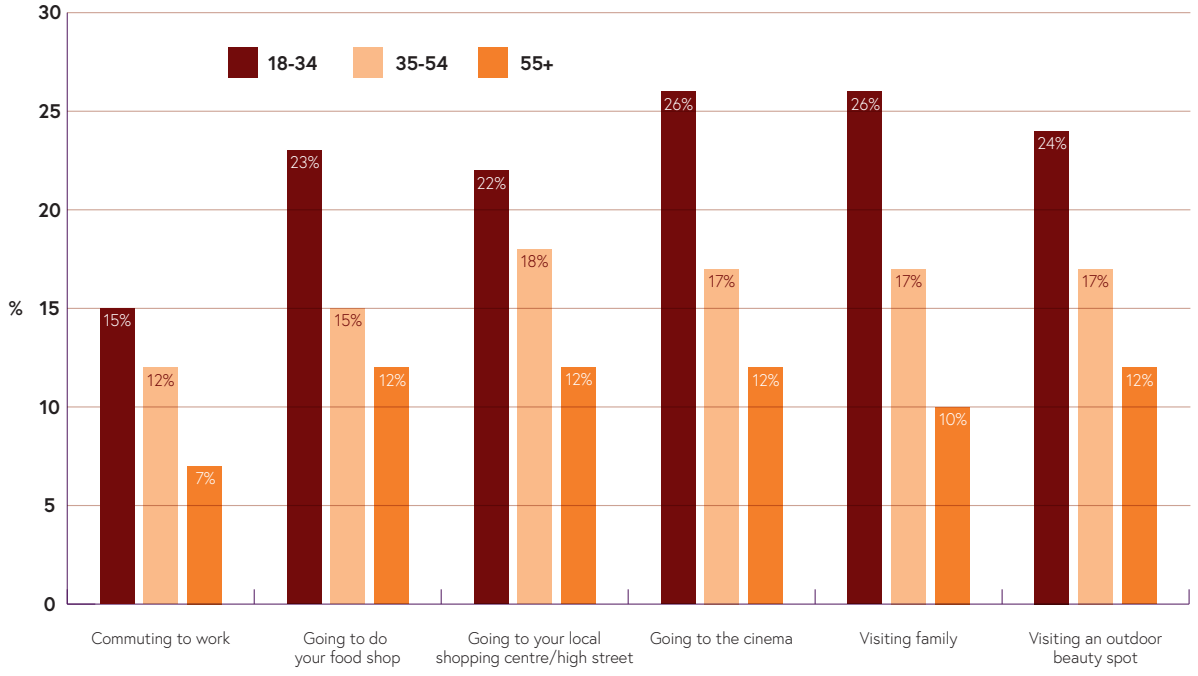


Figure 17: Which **one** of the following was most important when choosing the transport you take for these journeys? Base size (All respondents who make journeys not by car): 1,101 – 1,735.

– A similar trend is seen when we asked respondents to think of how they would behave in a real-world trade-off. We saw that when choosing between taking a longer public transport journey over a shorter car journey for a shopping trip, younger people were more likely to make the green trade-off.

Trade-off between public transport or driving to the shops

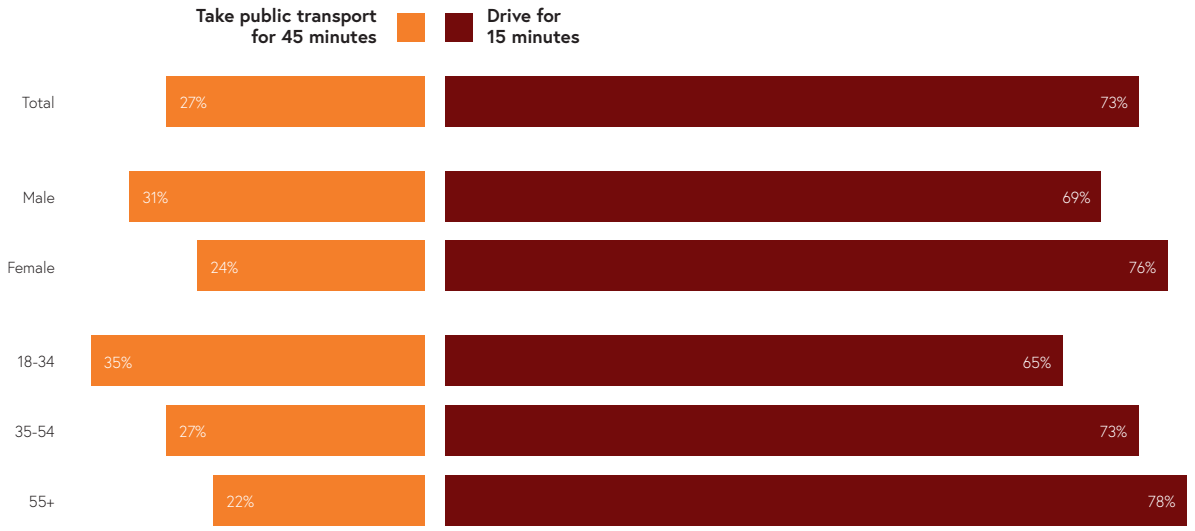


Figure 18: For the following question you will be presented with a series of choices. We want to know which one you think you would be realistically most likely to make if you were in the situation. Get public transport for 45 minutes to go to the shops or drive for 15 minutes to go to the shops. Base size (All UK respondents): 3,337.

- Interestingly, COVID-19 appears not to have impacted people's expectations of how they will make journeys once they are able to again. Across the board we see very similar responses to all journey options, when asking about both previous behaviour and future expected behaviour.
- Despite car sharing being a theme when people think about reducing their carbon footprint, it is still not common behaviour. However, the younger age group tend to score highly for car sharing, with 42% of 18–34-year olds saying they had used it before, compared to 3% of those aged 55+.
- Environmental concern and the pragmatic issue of cost share a balance in the motivation for car sharing. Younger respondents lean towards the reduction of carbon emissions, while middle-aged respondents place more importance on cost saving.

What was influential in their choice to use a car sharing service

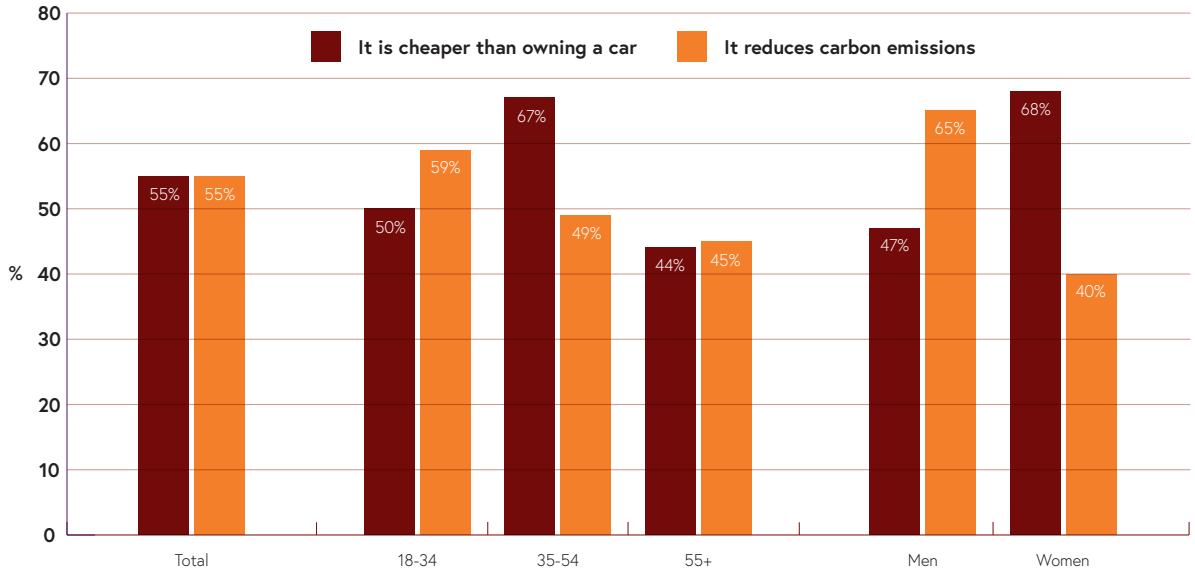


Figure 19: Which of the following was more influential in your decision to use car sharing technology? Base size (All respondents who have used car sharing technology): 639.

7.2 Holidays and attitudes:

- The attitudes towards electric vehicle ownership has already been examined extensively, with range anxiety, cost and convenience often cited as barriers to purchase. Instead, we examined the attitudes of respondents around renting electric or hybrid vehicles on holiday. Here, reducing carbon footprints was a leading factor for those who have chosen to rent an electric vehicle (EV) or hybrid vehicle while on holiday — over and above pragmatic reasons.
- This may indicate that people are more likely to make green choices as a one off or be attracted to the idea of trying before they buy. Interestingly, the survey showed a trend towards 35–54-year olds (67%) being more likely to rent an electric vehicle (EV) in order to reduce their carbon footprint than 18–34-year olds (60%).

Reasons for renting an electric vehicle on holiday

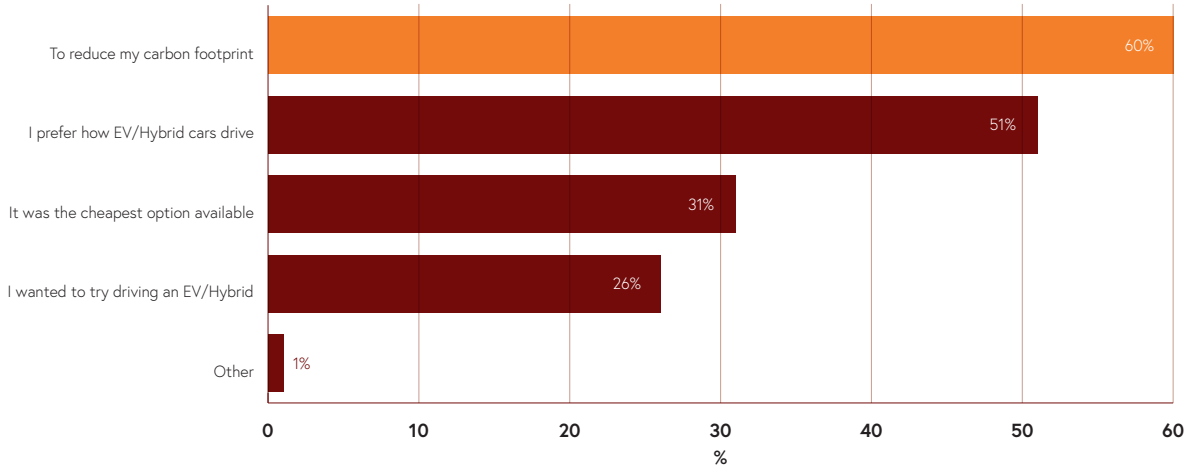


Figure 20: Why did you decide to rent an EV or hybrid car? Base size (All respondents who have rented an EV on holiday): 219.

- When considering travel choices for how to reach holiday destinations, there is less intention to make green choices — only a quarter of respondents would consider the train over flying to reach their holiday destination.
- When we asked respondents what their reasoning was for taking the train instead of flying on holiday, an equal proportion of people (32%) cited carbon reduction and cost as the principle motivations for doing so.

Reasons for taking a train rather than flying

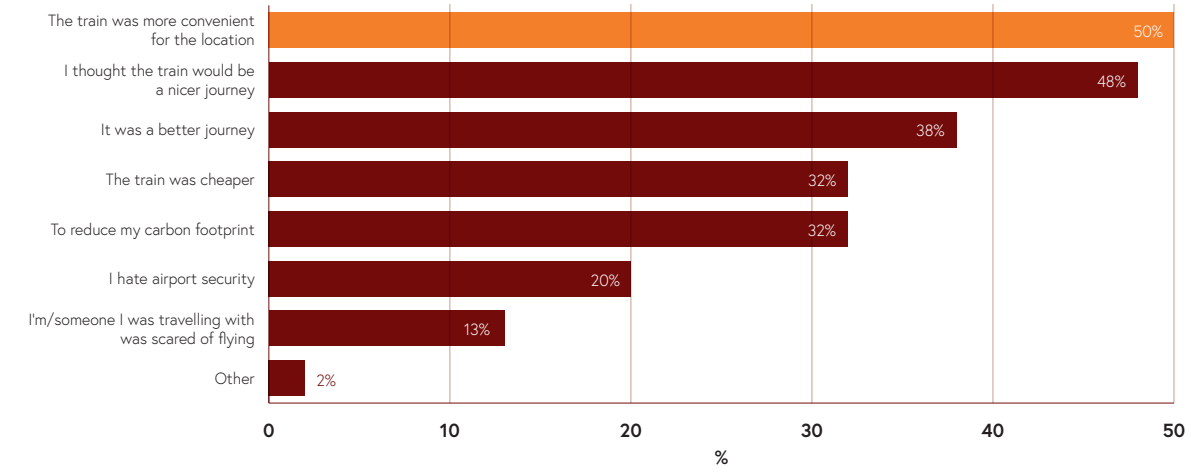


Figure 21: Why did you decide to take a train rather than a plane on holiday? Base size (All UK respondents who took a train to their destination): 397.

- When looking into future travel habits, 50% said they would have a holiday in the UK within the next three years, but only 18% of them cited carbon reduction as the reason. The impact of COVID-19 is clearly a big influence here, with it being as important as people's preferences for location, not wanting to travel far, and just above the practicalities of cost.

Reasons for taking a holiday in the UK in the next three years

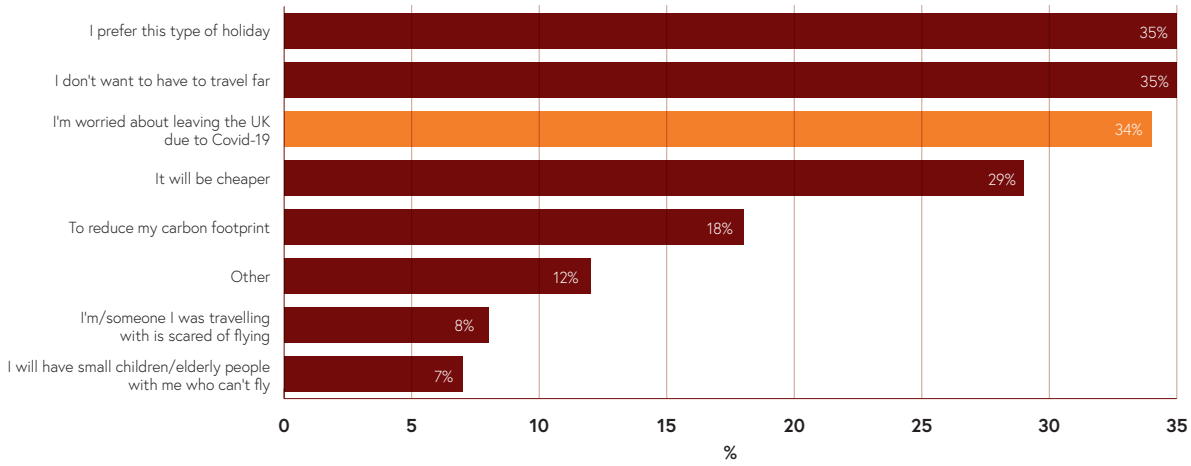


Figure 22: Why would you choose the UK as a holiday destination? Base size (All respondents who would choose the UK as a holiday destination in the next three years): 1,656.

7.3 Barriers to adoption

Cost and convenience:

- Cost again comes out strongly as a principle driver for the adoption of greener alternatives. However, pragmatic reasons still dominate people's decisions about the type of transport they use, with environmental concerns not being a primary consideration.
- If we look into the reasons that people have for using other means of travel over driving, again we see that the cost and speed of the method of journey are more important than reducing carbon footprints (See Fig. 16, pg. 23).
- The primary reasons for respondents not owning a car is cost or because of good public transport links — not as a way to reduce their carbon footprint.
- Similarly, looking at a green trade-off relating to the speed of a journey, 73% of people would choose to drive 15 minutes over taking public transport for 45 minutes.
- When we asked respondents to consider another real-world green trade-off, 75% of people chose to fly on holiday for £200 over taking the train to Europe for a holiday for £500.
- When asking more generally about taking the train over flying to a holiday destination, two-fifths cite cost as the main issue, followed by other convenience factors and some expectation barriers.

Barriers to taking train rather than flying

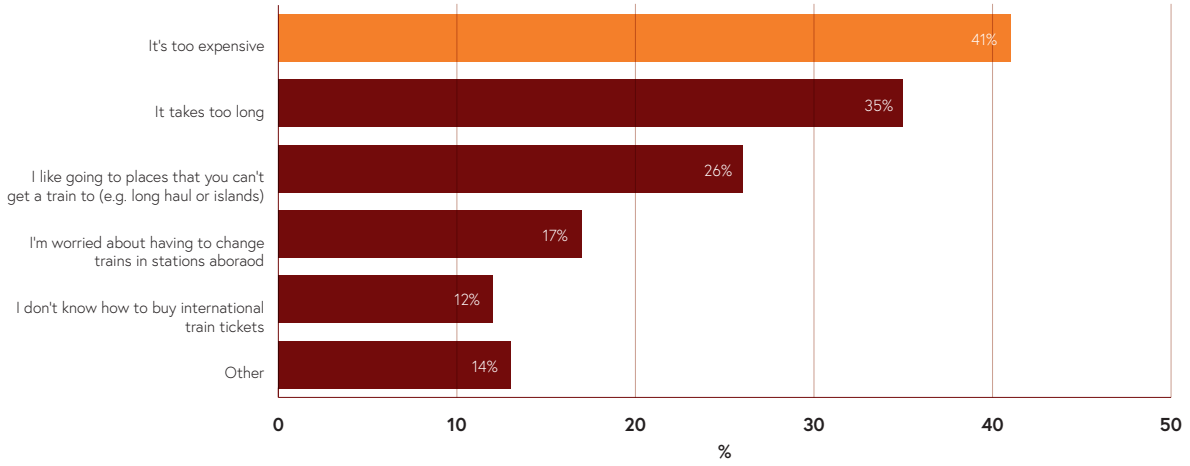


Figure 23: Which of the following are barriers to you choosing traveling to a holiday destination by train rather than flying? Base size (All respondents who flew instead of training a train): 2,940.

– Encouragingly, there is much more openness to making a greener choice when it comes to deliveries. More people are willing to wait slightly longer for deliveries to arrive using low-carbon means, receive all of their items in one delivery and choose a green-delivery slot over a time that suits them best. This could partly be due to the fact that these are more passive choices, rather than active choices.

Making green trade offs

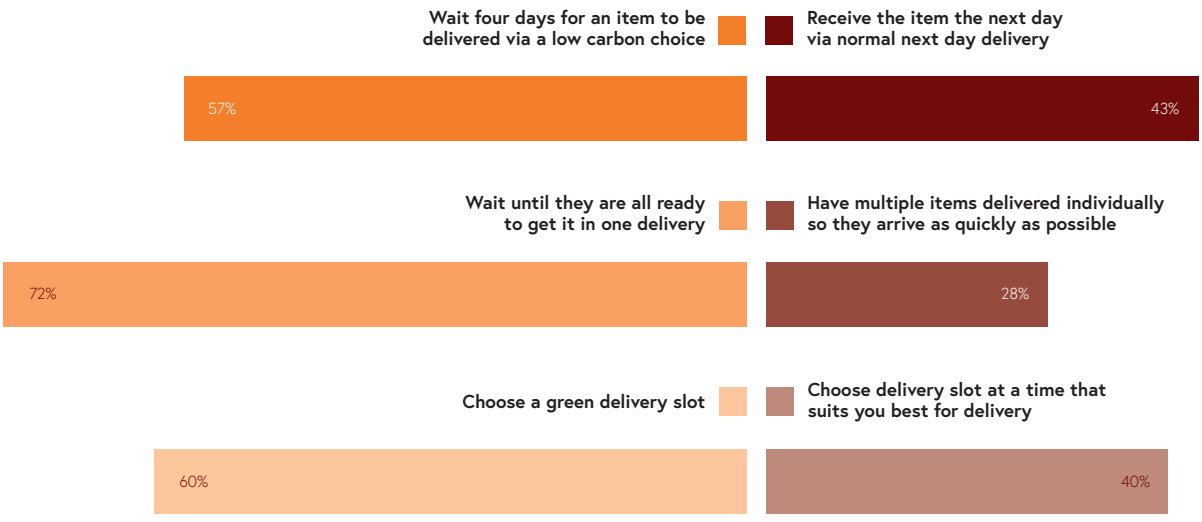


Figure 24: For the following question you will be presented with a series of choices. We want to know which one you think you would be realistically most likely to make if you were in the situation. Base size (All UK respondents): 3,337.

Availability:

– The attitudes towards electric vehicle (EV) ownership have been looked at extensively, with availability, particularly that of pure EVs often being cited as a barrier to purchase. When looking at holiday rentals, half of respondents rent petrol or diesel vehicles because of a lack of availability of EVs or hybrids.

Reasons for not renting an EV on holiday

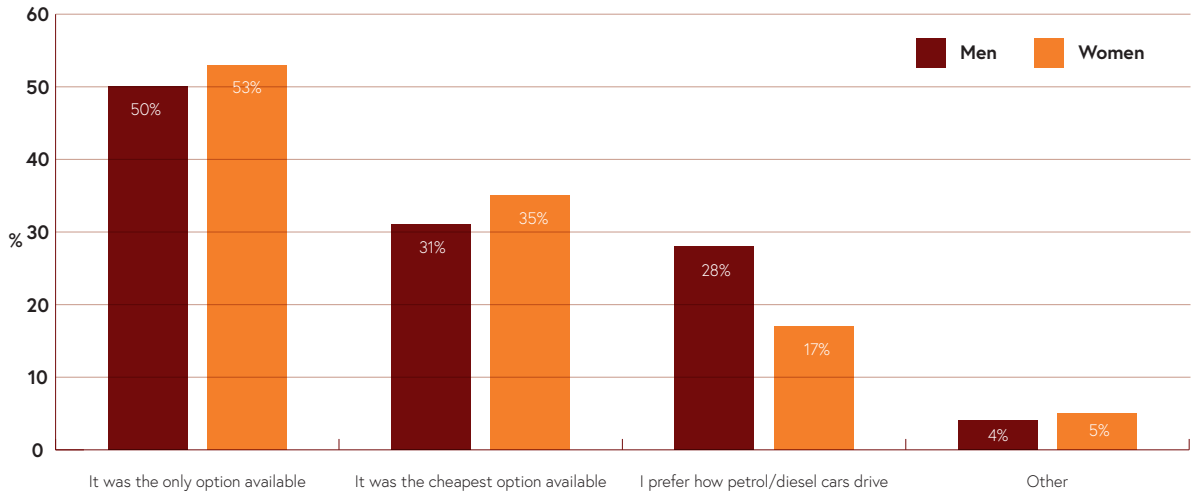


Figure 25: Why did you decide not to rent an EV or hybrid car? Please select all that apply. Base size (All respondents who have rented an ICE but not an EV on holiday): 335.

- An interesting gender difference uncovered by the research showed that men were more likely to cite preferring how petrol and diesel cars drive as a factor in their choice than women. This indicates that a perception change is needed and also exposes the potential opportunity the rental market has in driving change by giving prospective owners a chance to try before they buy.

Expectations:

- Expectations and preferences are clearly heavily influential as potential barriers. This was particularly apparent when we look into the barriers for choosing the UK as a holiday destination, which would limit the need to travel by air.

Barriers to choosing a holiday in the UK

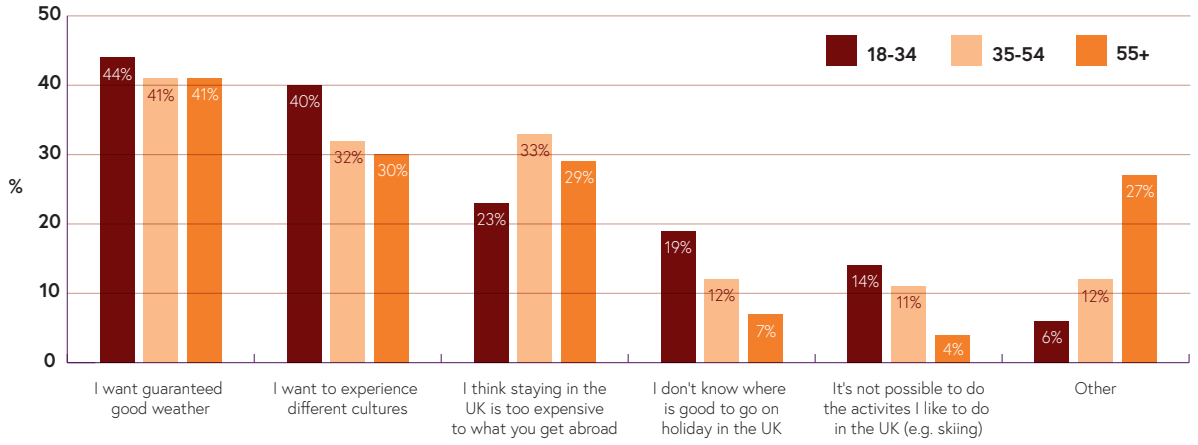


Figure 26: Which of the following are barriers to you choosing to have a holiday in the UK? Please select all that apply. Base size (All respondents who haven't had a holiday in the UK for the past three years): 1,778.

- It seems a change in expectations is required, particularly for the younger generation, who in most other areas surveyed do come out as broadly more environmentally minded. Guaranteed good weather and experiencing different cultures are strongly cited barriers for young people holidaying in the UK, so there could be a knowledge gap to overcome in order to change expectations.

8. Summary of key findings

- **8 in 10 UK adults** often or always **recycle plastic, tins and paper materials**.
- **Younger people** tend to **engage in more active recycling** behaviours on average.
- However, only **half of UK adults** surveyed often or always **recycle food waste (51%)** and **batteries (54%)**.
- In the 18–34 and 55+ age ranges, **eating less meat** (40% vs 22%) and **choosing to purchase locally-sourced fruit and vegetable produce** (41% vs 27%) proved to be the **biggest differentials**.
- When older people do outperform the young, active behaviour tends to be driven by personal responsibility **(97% of those aged 55+ take their own bags when shopping compared to 72% aged 18–34)**.
- **34% of UK households** say they are currently on a **green-energy tariff**.
- There are significant **regional differences** between those on **green energy tariffs** (49% in the East Midlands compared to only 13% in Northern Ireland).
- **UK adults** say they have a **better understanding** of long-standing **green technologies**.
- On average, people **overestimate the cost of green technology**.
- **Four in ten** UK adults have **not heard of battery storage** for homes.
- Levels of **understanding of green technology** reflect actual levels of installation, with **better known renewable technology being installed more frequently** (double-glazing 77% to solar panels and heat pumps 17%).
- The most **common reason** for people making or **not making environmentally friendly changes** is because of **financial limitations** or **potential savings**.
- **Driving** remains the **most prominent** form of **transport**.
- **Around 9%** of those surveyed **own a hybrid electric vehicle**, but **pure electric vehicle** owners represent **less than 3%** of the population.

9. Conclusion

To date, there have been active, decisive and important steps that have been made to reach our net-zero target by 2050. However, there is much more to be done in the coming years. All of us, from individuals in the street, to academia, industry, and government, have a role to play in making our planet more sustainable. We must use all its resources more effectively and efficiently.

The IET's Green Preferences Survey provides a snapshot of the UK public's understanding, actions and willingness to create a greener, more sustainable future. Our survey reveals the British public's attitude towards climate change and how people are willing to adapt their lives to take positive steps to addressing climate change.

It is encouraging to see that 87% of the UK population understands that the climate is changing solely or partly because of human activity. Positively, people are making more active-recycling choices, when costs allow, including eating ethically and using reusable water bottles. This shows that the UK is willing to make ethical considerations in their day to day lives to prevent climate change.

However, cost and awareness have clearly emerged as two of the biggest barriers affecting the active adoption of green technology and solutions. Supplementing these, there are other secondary factors — with convenience, speed and availability of green technology presenting as barriers to the uptake of technology.

Cost, and the perception of costs, for new technologies is perhaps the largest barrier we face in promoting green technologies. Repeatedly in our survey we found that either the overestimated cost, or the perception of excessive expense of the technology, meant that the technology lost popularity, preference and priority. This combined with a general apathy to learn more about green technology, presents a significant challenge to overcome.

Concerningly, 26% of the UK population do not know if they are on a green-energy tariff and 39% of the UK population declared that they do not have one. We have also learnt that homeowners feel comfortable cooking on gas and feel their appliances are efficient enough and have no appetite to change them. In view that 28% of the UK population rents, there are even further barriers to acquiring green technology within households. As the survey found, less than half of those who rent would feel comfortable asking their landlords for green improvements, which drops further for those aged 18-35, whom are the largest age group who rents

by plurality. Clearly there are considerations here as to how awareness is best targeted and communicated going forward.

It will also be essential to understand how to communicate future change. Technology will continue to change at a rapid pace, and for some, having the confidence to make pragmatic decisions is missing. Not only is newer technology (such as battery storage, alternative gas heaters and heat pumps) complex for some to fully understand, there is again apathy in wanting to learn more. Long-standing technology (such as double glazing, insulation and draught proofing) is understood better, but this should be the bare minimum in terms of adapting people's homes to meet our net-zero targets.

What is clear from the research is that to make real progress, we need to build trust through effective communication. Engineers must partner with government, industry, academia and build a better understanding of the needs and concerns of consumers. Our recommendations are a guide for every one of us to work together to achieve our net-zero target. We know that this is the greatest engineering challenge of our lifetime and one that we must be successful at. We also know that we can, and will, engineer a more sustainable future for ourselves and for generations to come.

10. About the IET

We are the IET — a charitable engineering institution with over 167,000 members in 150 countries — working to engineer a better world. Our mission is to inspire, inform and influence the global engineering community to advance technology and innovation for the benefit of society.

Addressing global warming quickly and effectively requires urgent, clear and decisive leadership, both politically and within industry, and relies on establishing the infrastructure, systems and governance for long term sustainability. Finding a solution, is without doubt, the most difficult and important engineering challenge of our time — one which we are determined to lead.

Engineers have the skills, insights and ingenuity to help tackle climate change in ways that optimise efficiency, economy, safety and reliability. As engineers, we are problem solvers and innovators, with a unique world perspective. Most of these issues are significant, challenging and require unprecedented collaborative action. We bring together engineers, technicians and practitioners from industry and business, from academia and research, and from government and the third sector.

We cover engineering across industry from design and production, digital and energy to healthcare, transport and the built environment. We champion engineers and technicians working in the sector by offering networking, volunteering and thought leadership opportunities. Together, we campaign on issues of the day around climate change and sustainability, and provide policy input to the Government. Your specialist knowledge can inspire others and make a difference.

To find out more contact **sep@theiet.org**

The Institution of Engineering and Technology

Our offices

London, UK
T +44 20 7344 8460

Stevenage, UK
T +44 1438 313311

Beijing, China
T +86 10 6566 4687

Hong Kong
T +852 2521 2140

Bangalore, India
T +91 80 4089 2222

New Jersey, USA
T +1 (732) 321 5575

@TheIET

theiet.org