

Ofgem Consumer Survey 2021

Tracking data and insights into decarbonisation & home energy use

Introduction from Ofgem

Ofgem is Great Britain's independent energy regulator. We have undertaken a nationally representative survey of domestic energy consumers in Great Britain to measure consumer engagement with energy and their attitudes towards topical energy issues since 2014.

In 2020 we introduced questions measuring the extent of attitudes held towards decarbonisation and how many consumers are open to changing their energy use behaviour. The 2021 survey, of over 4000 GB energy consumers, repeats these questions to track any change in perceptions, attitudes and behaviours.

It is well established that social and behavioural change can make an important contribution to meeting Net Zero greenhouse gas emissions. Changes to the way we heat our homes, power our vehicles and how and when we use energy will be needed, and technology will be a key enabler. This research helps us to track where consumers are at on the decarbonisation journey. **Fieldwork was conducted from 19th August to 17th September 2021, before the global energy crisis.**

This report is a summary of the findings relating to decarbonisation and home energy use prepared by Ipsos. It builds on a series of short summaries published by Ofgem in November 2021¹.

¹ Summary reports on young energy consumers, electric vehicle users and attitudes to climate change and uptake of low carbon technologies can be found here: [Consumer Survey 2021: Summary of findings on consumer attitudes to climate change and uptake of low carbon technologies | Ofgem \(HTML\)](#).

Summary of key findings

Key findings: Attitudes to climate change, monitoring energy use and Green Tariffs



Concern about climate change is high but many consumers think they are doing enough

80% of energy consumers in Great Britain report being worried about climate change. However, there remains a mismatch between consumers' concern about climate change and the actual behavioural changes needed to reduce its impacts. Over half of consumers (56%) already think they're doing enough to tackle the effects of climate change. Amongst those consumers who think they are doing enough, 72% do not have any type of low carbon technology in their homes (e.g. electric vehicle, solar panels, smart appliances/heating controls or heat pumps).

Most say they understand their energy use, but many don't monitor it

Around three quarters (75%) say they understand how much energy they use in their home, while 57% are concerned about their energy usage. However, only 37% of consumers say they consistently monitor their energy use (i.e. say they do it always or most of the time).

There is significant confusion around green tariffs

A quarter of consumers (27%) say they are on a green tariff, and a further 24% say they are likely to switch to one in the next five years. However, there is confusion around green tariffs as 31% say they don't know whether their household is on a green tariff, and when prompted, 31% incorrectly think a green tariff means all the energy they use is generated from renewable sources.

Key findings: Low carbon technologies, smart meters and flexibility



Three quarters (75%) say they do not have any of the main types of household low carbon technology¹ but attitudes towards low carbon heating are shifting

Despite increasing sales of plug-in vehicles over the past 12 months, in the survey 2% say that they have fully electric vehicles and 3% have plug in hybrid vehicles. Fewer consumers say they are likely to take up an electric vehicle compared to 2020.

Prevalence of low carbon heating² also remains low at 3%, but there are encouraging signs that attitudes are shifting. Among owner occupiers who do not yet have low carbon heating, 23% say they intend to install a low carbon heating system, up from 14% in 2020.

Willingness to adopt smart products and services is constrained by barriers to adoption

Only 3% of consumers think they are currently on a Time of Use tariff (TOU), rising to 16% of owners of fully electric vehicles (16%).³ 58% of energy consumers said they would feel uncomfortable with an external company controlling when their heating, appliances or smart chargers run, similar to 2020. Lack of trust is the key barrier, with people concerned about safety, reliability and sharing data and information with companies.

Although 67% of consumers with plug-in vehicles say they are open to smart charging controlled by external companies, practical barriers to take up of smart charging remain (awareness, availability and cost).

¹ Low carbon technologies included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps

² Low carbon heating included in the survey: heat networks, heat pumps, micro-combined heat & power systems, hydrogen powered heating

³ Some participants were confused as to whether their household was on a Time of Use tariff, so results should be treated as indicative

How this report is structured:

1

**Research
method**

2

**Attitudes to
climate change**

3

**Monitoring
energy use**

4

Green tariffs

5

**Low carbon
technologies**

6

**Smart meters
and Flexibility**

For a detailed breakdown of the 2021 survey results please refer to the data tables published alongside this report.

Research method

Research method

For a full description of the 2021 survey methodology and objectives, please refer to the technical report, available here: [Consumer Survey 2021 | Ofgem \(HTML\)](#).

Target sample:

GB consumers with mains gas and/or electricity and full or shared responsibility for energy bills

Data collection: online, sampled from a blend of panels

4,037* online interviews in 2021

(2020: 4608; 2019: 4001; 2018: 4064; 2017: 4,001; 2016: 5,956; 2015: 5,934; 2014: 6,151)

NB 2020 sample size was larger than recent waves due to re-fielding to include respondents aged 65+ in the sample.

Interviews carried out in all Government Office Regions in **England, and in Scotland and Wales**

Quotas on age, gender, social grade and working status, to reflect a **nationally representative sample of bill payers/partners**

Data weighted to align with profiles from previous years

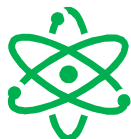
NB The 2020 and 2021 waves were both conducted online, while previous waves were completed face to face. Significant differences are shown between 2020 and 2021 results.

Fieldwork carried out between 19th August – 17th September
2021 Average interview length = 18 minutes

Notes on reading this report – impacts of the energy crisis and the COVID-19 pandemic




Fieldwork in 2021 was completed **before the impacts of the recent energy crisis** – including the failure of several suppliers at the end of September – affected the GB energy market. Therefore, the findings capture consumers' attitudes and behaviours prior to this event and **cannot comment on the impact of the crisis on future attitudes or behaviours.**



At the time fieldwork was conducted, the UK national COVID lockdowns had finished and – unlike in 2020 – many national COVID restrictions had been lifted. It is anticipated that the COVID pandemic and lockdowns, and associated economic impacts, may have continued to affect responses to the survey in 2021 to some degree.

Conventions throughout report

Significant differences are clearly marked throughout the presentation. All marked changes over time and subgroup differences have been tested at the 95% confidence level.

Changes between subgroups are represented by black up/down arrows $\uparrow\downarrow$; significant differences between trended data are represented by up/down triangles 

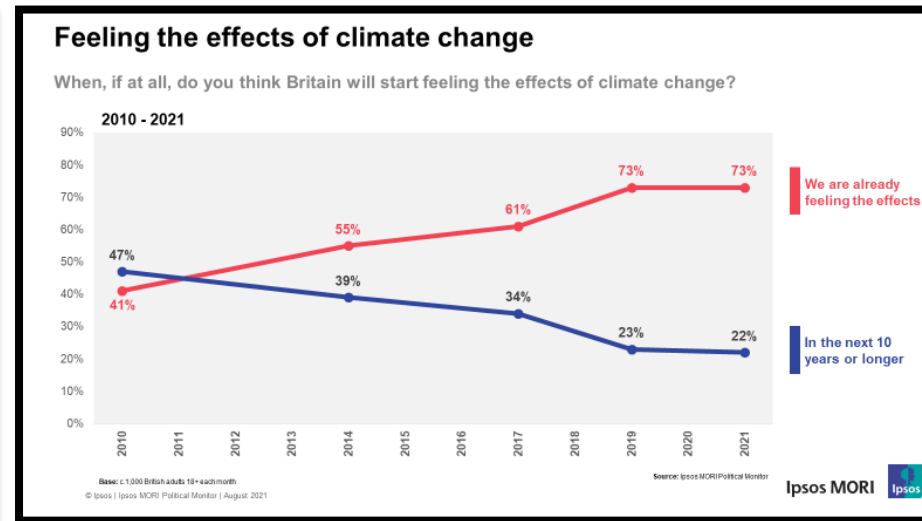
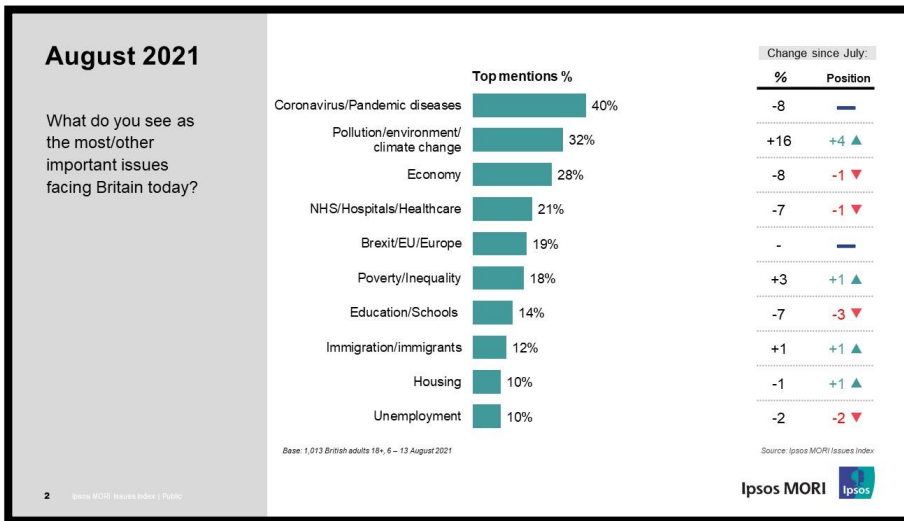
Some figures have been rounded up / down, and not all categories are shown, so sums will not always total 100 percent.

Attitudes to climate change

Context (1)

Public engagement with climate change & willingness to act

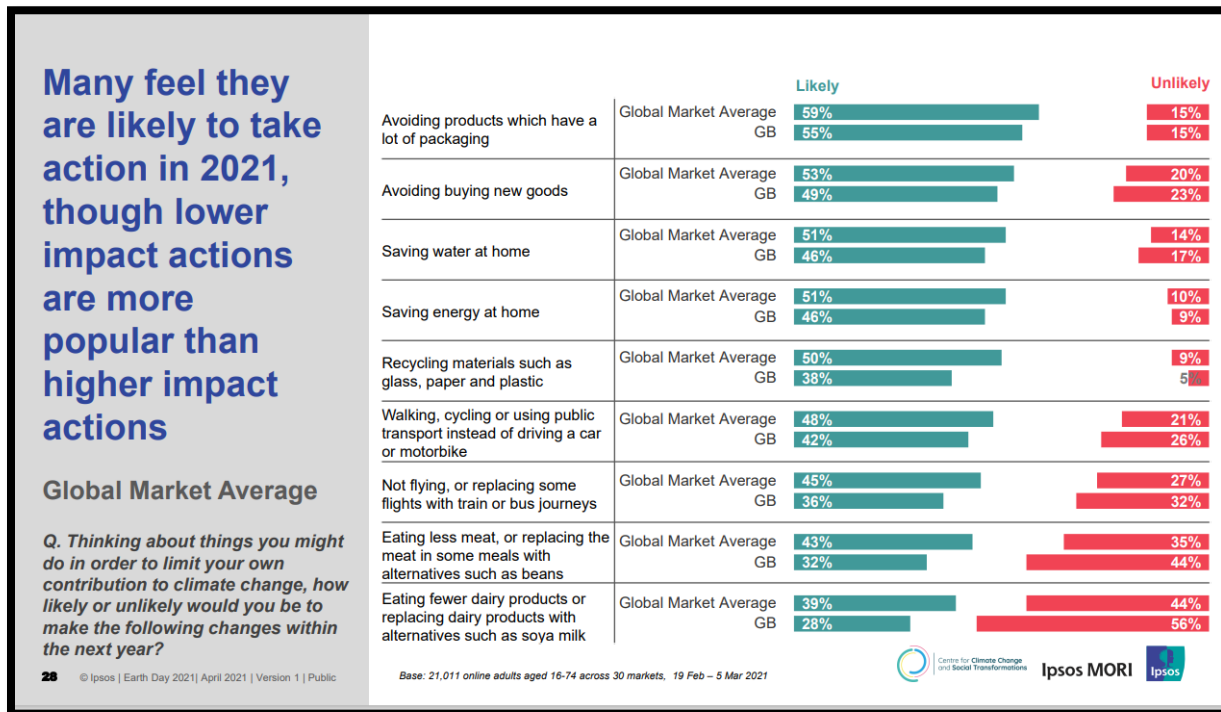
As of August 2021, a third of the British public see the environment / climate change as a big issue for the country, second only to the Covid-19 pandemic in terms of important issues. While the pandemic is viewed as the top issue currently facing the UK, 2 in 3 (66%) see climate change as being as serious a crisis as Covid-19 in the long-term, and climate concern remains at the highest level since Ipsos MORI began tracking it in 2005. The fact that climate concern has remained at a very high level even after a year and a half of a global pandemic is likely linked to increasing belief that we are already experiencing the effects of climate change.



Context (2)

Public engagement with climate change & willingness to act

Ipsos research shows that in general, **people in Britain are willing to play their part in tackling climate change**. There is an acceptance that the way we live our lives will have to change substantially to address climate change (84% agree), coupled with a sense of personal responsibility, with 73% agreeing that if individuals do not act now to combat climate change they will be failing future generations. Following this, there is a willingness from the public to make lifestyle changes now; for example, 46% of Britons say they are likely to save energy at home, and 42% of Britons say they are likely to walk, cycle or use public transport instead of driving a car or motorbike to limit their contribution to climate change.



Climate concern

Four fifths say they are worried about climate change, with worry highest among the youngest age group and families with young children

■ Extremely worried ■ Very worried ■ Somewhat worried ■ Not very worried ■ Not at all worried

80% Worried



** Don't know / prefer not to say not shown*

Worry highest among:

- 16-34 year olds: 85%
- HHs with children under 5: 87%
- Hassle Haters (85%), Happy Shoppers (84%), Savvy Searchers* (84%).

Those worried are more likely to:

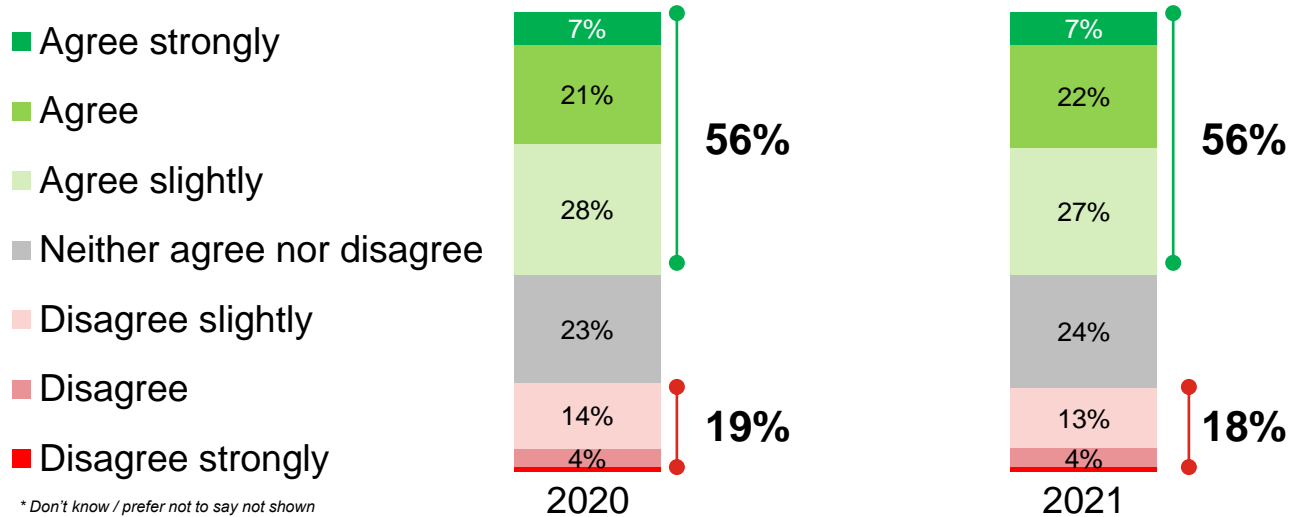
- Have a green tariff: 30% vs 17% among those not worried
- Have a type of low carbon technology*: 26% vs 21% of those not worried
- Monitor their home energy use consistently (always / most of the time): 38% vs 32% of those not worried
- Say they'll install a low carbon heating system* (24% vs 12% of those not worried) or make energy efficiency improvements (27% vs 14% of those not worried)

*Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps. 'Low carbon heating' included in the survey: heat networks, heat pumps, micro-combined heat & power systems, hydrogen powered heating. See engagement report for segment engagement profiles in 2021.

WORRYCC How worried about climate change are you nowadays? Base: Total 2021 (4037)

Climate action (1)

Over half feel they are already doing enough to tackle climate change, unchanged since 2020



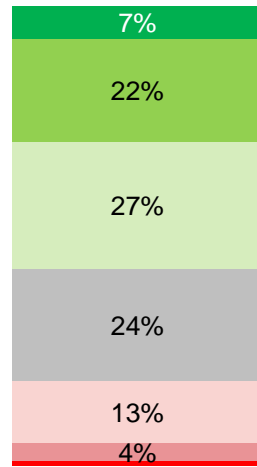
I think I'm doing enough myself to tackle the effects of climate change

ENG. Thinking about energy generally. To what extent do you agree or disagree with the following statements? Base: Total 2020 (4608) 2021 (4037)

Climate action (2)

However, there may be a level of disconnect between consumers feeling they are doing enough to tackle climate change, and energy behaviours linked to lower emissions

- Agree strongly
- Agree
- Agree slightly
- Neither agree nor disagree
- Disagree slightly
- Disagree
- Disagree strongly



56% →

Of those who feel they are doing enough to tackle climate change:

- Only half (48%) say that they always use their heating just the amount needed to be comfortable
- 43% do not consistently (always / most of the time) monitor energy use in their home
- 38% are not on a green tariff, and 30% don't know if they are on a green tariff
- Only 28% have any type of low carbon technology* in their household

From *Ipsos Earth Day 2021*: The proportion of Britons saying they are **likely to save energy at home** in order to limit their contribution to climate change has decreased slightly since 2020 (46% in 2021 vs 49% in 2020)

I think I'm doing enough myself to tackle the effects of climate change

* Don't know / prefer not to say not shown

2021

ENG. Thinking about energy generally. To what extent do you agree or disagree with the following statements? Base: 2021 (4037)

*Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps.

Key messages: Attitudes to climate change



Climate change is a worry for most (80%), with worry highest among the younger age groups (85%) and households with young children (87%).

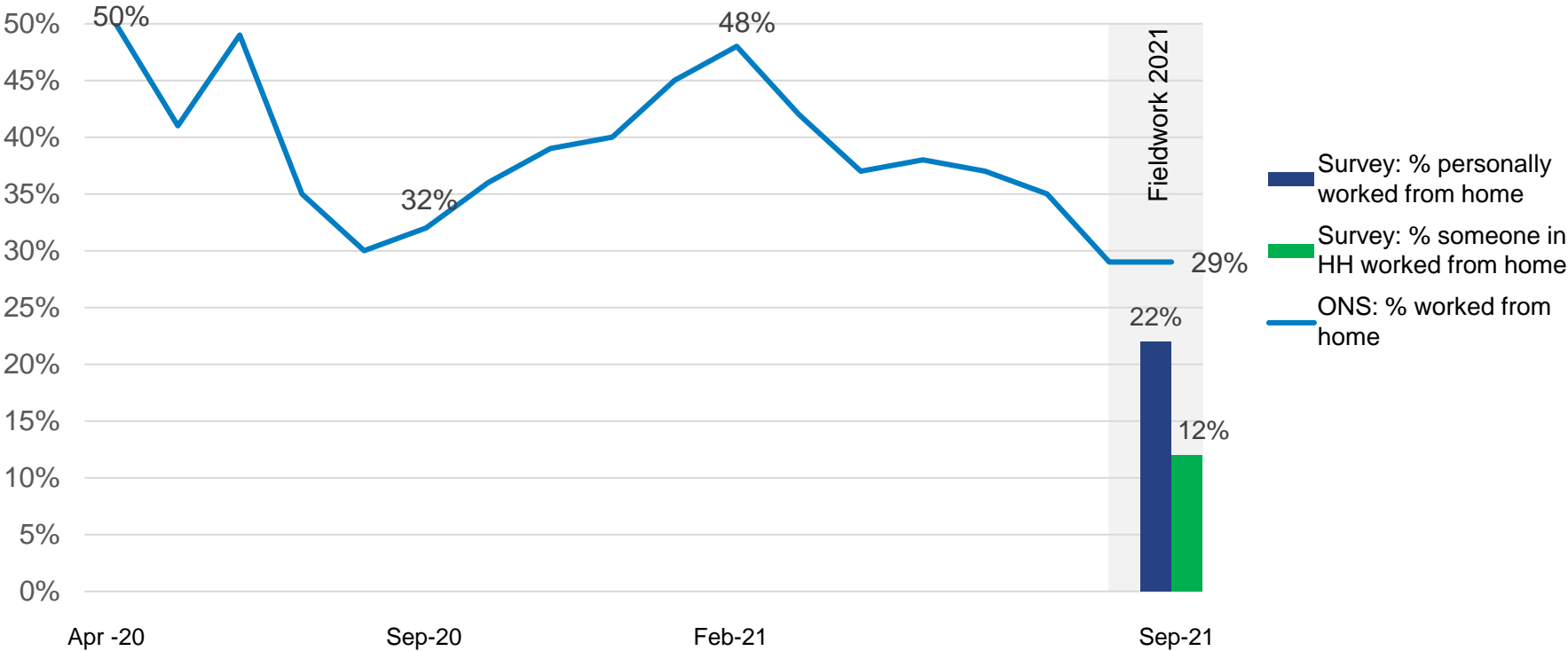
While a causal pathway cannot be determined, climate concern may be linked to uptake of low carbon technologies; those concerned about climate change are more likely to have a green tariff or low carbon technology* in their home and are more likely to say they will install a low carbon heating system or make energy efficiency upgrades.

However, there may be a level of disconnect between home energy usage and climate action, with a high proportion of those who think they are doing enough to tackle climate change also saying they don't consistently monitor their energy use and don't have any type of low carbon technology in the household.

*'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps.

Monitoring energy use

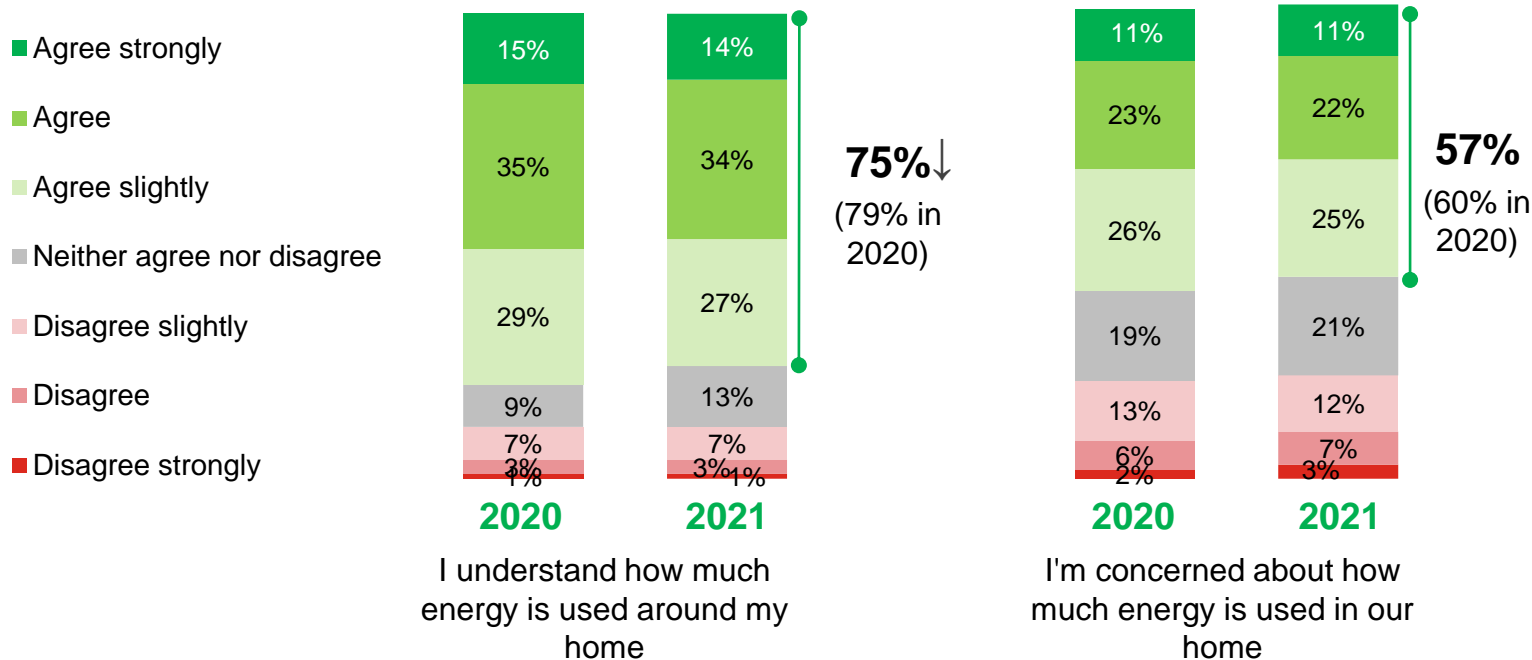
Working from home fluctuated in 2020/21, falling to its lowest rate during 2021 fieldwork. A fifth of those surveyed worked from home.



D4. Over the past 7 days have you or someone else from your household worked from home? Base: Total 2021 (4037); [ONS Coronavirus and the social impacts on Great Britain Statistical bulletins | ONS \(HTML\)](#).

Three quarters feel they understand their energy use in their home, while over half are concerned about it

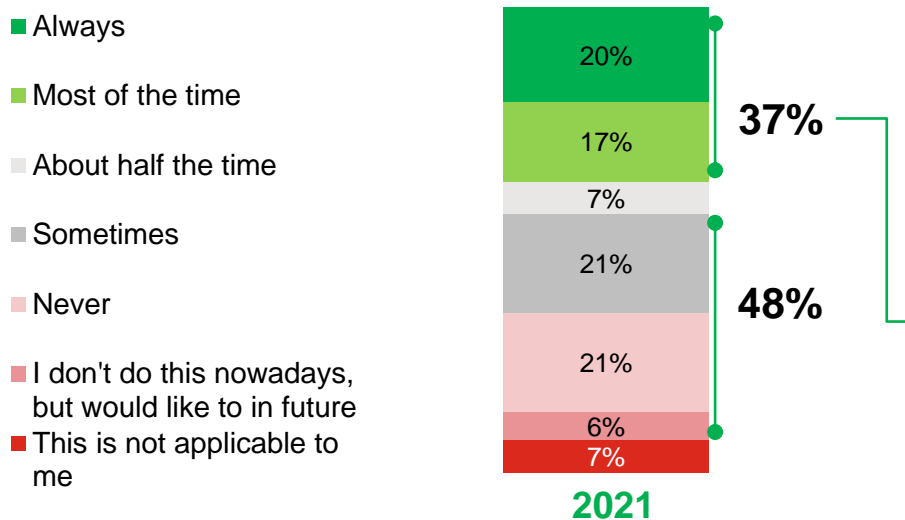
This is a slight decrease on 2020, but is driven by increases in the proportion 'neither agree nor disagree' rather than reflecting a true fall in understanding or concern about energy use.



ENG. Thinking about energy generally. To what extent do you agree or disagree with the following statements? Base: Total 2021 (4037), Total 2020 (4608). ↑↓ indicate significant change between waves

Just under 2 in 5 monitor their energy use at least most of the time, while half do not consistently monitor their energy use

Consistently monitoring energy usage was higher among more engaged groups, but also vulnerable groups who tend to be disengaged – perhaps showing a route towards engagement.



Monitoring energy use in your home (e.g. checking energy meter/ a smart meter energy monitor or in-home display)

Consistently* monitoring energy use (always/most of the time) was higher among groups that tend to be more engaged in the energy market and low carbon energy use:

- **16-34** year olds (45%); households **with children** (43%)
- **Engaged** consumers (41%); those with **smart meters** (51%)
- Those on **fixed term** (41%), **green** (47%) or **Time of Use** (72%) tariffs
- Those with **fully electric vehicles** (65%) and **low carbon technologies*** in their home (48%)

BUT it was also higher among vulnerable groups who tend to be disengaged:

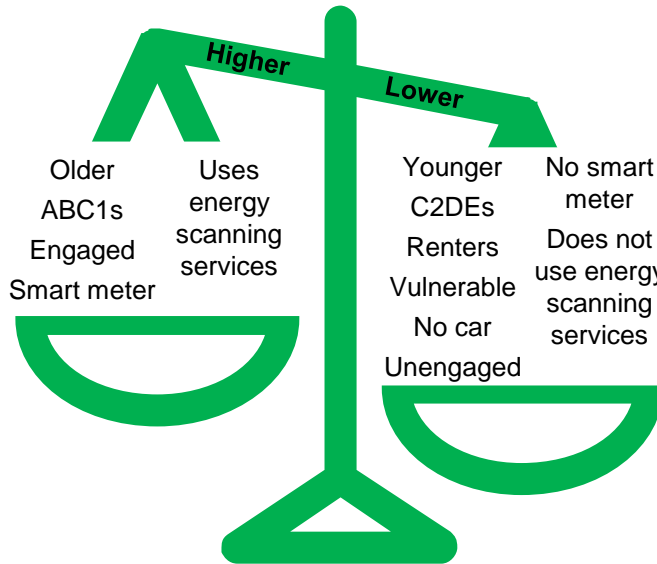
- Renters in **social housing** (42%)
- **Vulnerable** groups (notably those on Warm Home Discount (47%); on pre-payment meters (48%); and in arrears on bills (57%))

Those **concerned about climate change** are also more likely to consistently monitor their energy use (38% of those concerned do this vs. 32% of those not concerned)

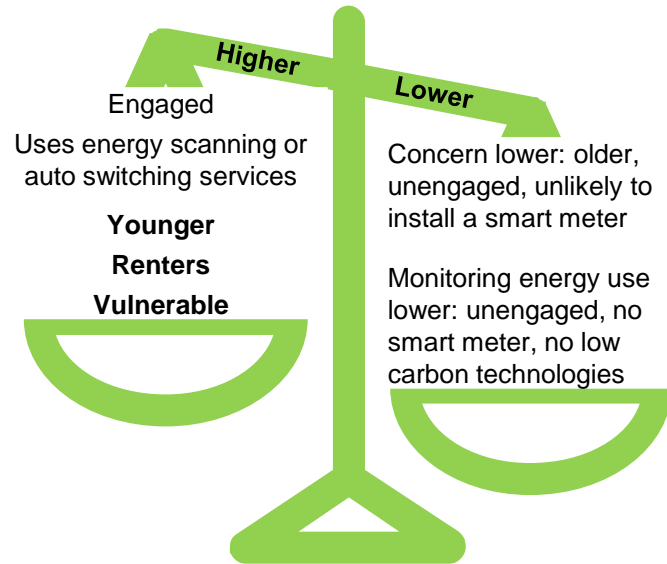
* 'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps.

FLEX1. How often do you do these things: ? Base: Total 2021 (4037)

Who is most and least aware of their home energy use?



Understanding of energy use is higher among more affluent, engaged groups, and lower among less affluent, unengaged.



Concern about and **rates of monitoring energy use** is higher among engaged groups too...

BUT it is also higher among unengaged groups. This could be converted to engagement among these consumers.

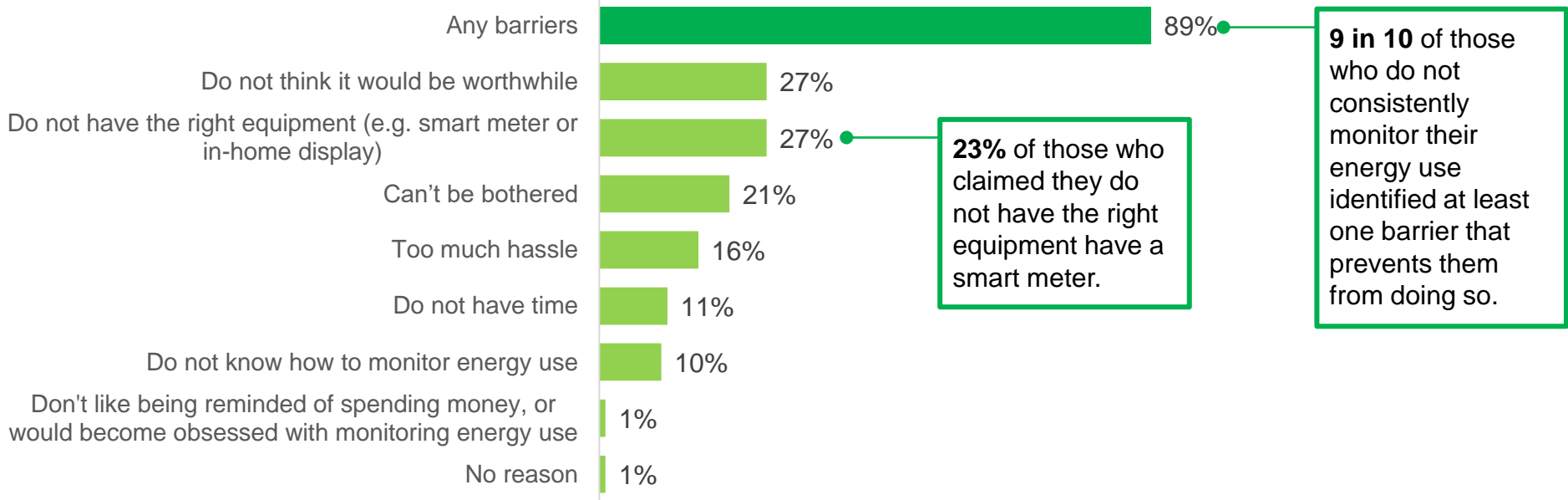


Engagement with energy use is generally higher among those who own fully electric vehicles, low carbon technologies* or those who say they are on a Time of Use (TOU) tariff*.

* 'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps. Many participants were confused as to whether their household was on a Time of Use tariff, so results should be treated as indicative

What are the barriers to monitoring energy use?

Low motivation and lack of equipment are the main barriers to monitoring energy use. Given the expected increases in energy prices, this could be addressed by highlighting the benefits of monitoring use and making it easier for people for access smart meters.

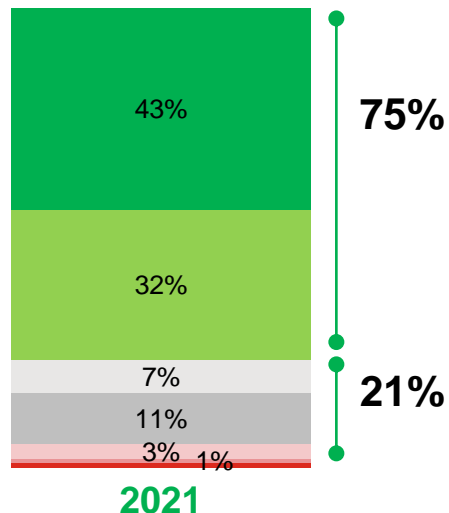


FLEX3. What, if anything, prevents you and your household from monitoring energy use in your home more often (e.g. through checking your energy meter/ a smart meter energy monitor or in-home display)? Base: 2021 All participants who do not consistently monitor energy use (1970). NB: question asked for first time in 2021.

Three quarters use their home heating carefully at least most of the time

Consumers who are most engaged and those with green tariffs or solar PV are most likely to say they use their heating carefully most or all of the time

- Always
- Most of the time
- About half the time
- Sometimes
- Never
- I don't do this nowadays, but would like to in future
- This is not applicable to me



Using your heating just the amount you need to be comfortable e.g. setting the timer, turning down temperature, turning radiators down / off in rooms you use less

Consistent* careful use of home heating higher among:

- **65+** year olds (79%)
- Those on **green tariffs** (82%)
- **Engaged** consumers (79%), especially **repeat switchers** (81%)
- Those signed up to **energy scanning services** (80%)
- Those with **solar PV** (82%)
- Those who are **worried about climate change** (77%) and feel they are **doing enough to tackle it** (79%)

FLEX1. How often do you do these things: ? Base: Total 2021 (4037)

*Those who use their home heating carefully always/most of the time

Key messages: Monitoring energy use



There are indications of similar levels of awareness/concern with how much energy is used versus 2020.

However, just under 2 in 5 (37%) monitor their energy use consistently. Energy monitoring was highest among those who are engaged with the energy market and low carbon technologies. Yet, it was also higher among the young and less affluent groups who tend to be less engaged.

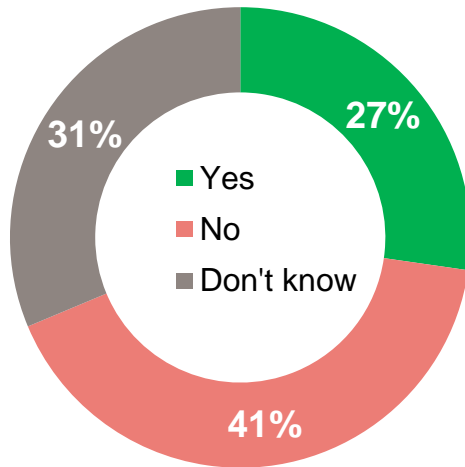
Lack of a clear benefit and lack of equipment are the main barriers to monitoring energy use more often. As there is a correlation between consistently monitoring energy use and concern for climate change, raising awareness of the environmental benefits of energy monitoring, in addition to the cost benefits, could be effective.

More people said they used their heating just the amount that they need to be comfortable (75%), in particular older consumers, those on green tariffs, concerned about climate change, and those engaged with the energy market.

Green tariffs

Take up of green tariffs

A quarter claim to be on a green tariff, but there is a high level of uncertainty, with a third of consumers unsure whether they are on a green tariff or not



Claimed take up of Green tariffs is higher among:

- 16-34 year olds (31%); Owner occupiers (30%); those living in modern (1990+) homes (31%), particularly flats (35%);
- Happy Shoppers (35%), Hassle Haters (34%), Savvy Searchers (34%)

Prevalence is higher among those engaged in climate and low carbon technology* users:

- Those worried about climate change (30%), vs 17% of those not worried
- Electric vehicle / plug-in hybrid owners (58%), vs 27% of those who have a non plug-in vehicle
- Those with low carbon technology⁸: 45% with heat pumps, 37% with Solar PV, 35% who have smart appliances

And those who are more engaged in energy generally:

- Engaged consumers (34%) vs 16% disengaged
- People who say they are on TOU tariffs (42%), vs 27% not on TOU
- Those with smart meters (31%), vs 24% of those without

GREEN: Are you on a green tariff for either your electricity or gas? Base: Total 2021 (4037) *'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps. See engagement report for segment engagement profiles in 2021.

Understanding of green tariffs

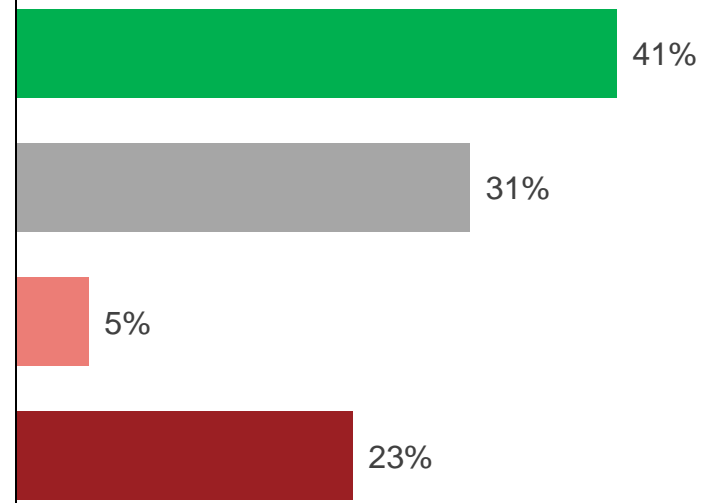
There is a high level of confusion and uncertainty about what a green tariff is, with a third assuming it means all their energy is from renewables, and a quarter unable to determine

It means that some or all of the electricity I use is 'matched' by purchases of renewable energy that your energy supplier makes on your behalf. These could come from a variety of sources such as wind farms and hydroelectric power stations. Some green supply tariffs are also nuclear-free

It means that all the energy I use is generated from sources like wind, solar or hydro or biomethane

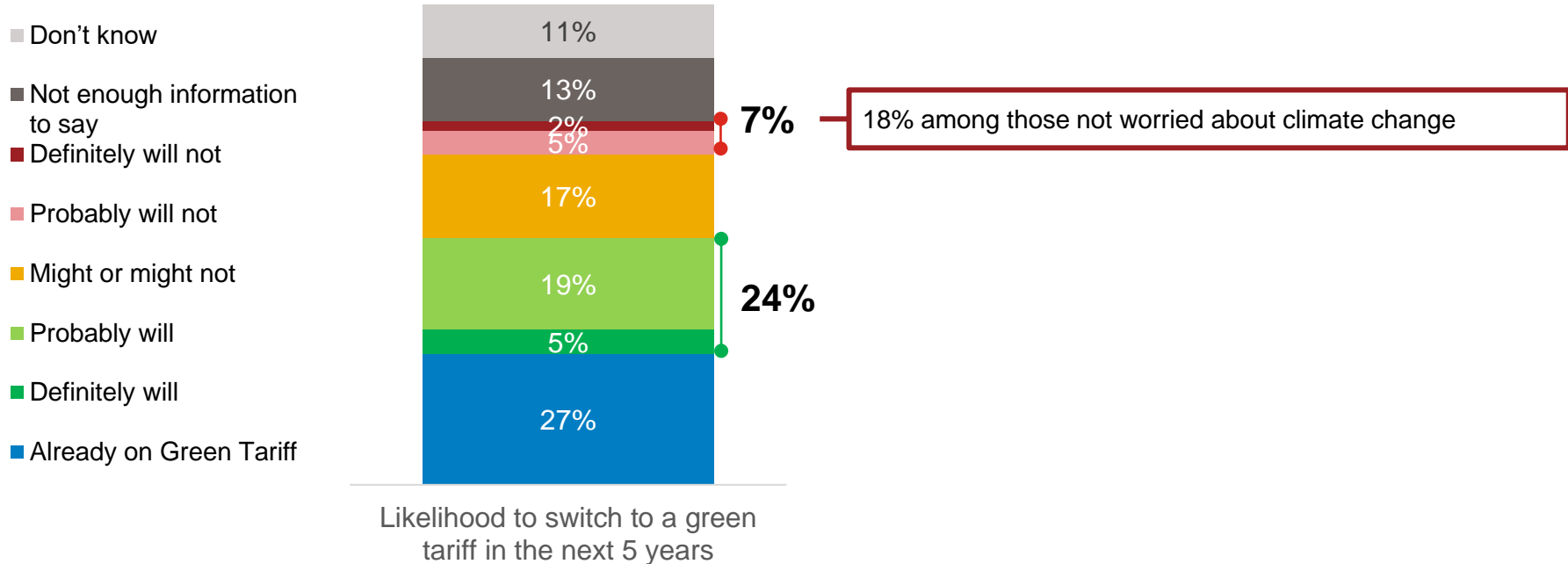
Neither

Don't Know



Likelihood of switching to green tariff

Half of consumers report that they are either on a green tariff currently, or say they are likely to switch to one in the next 5 years. Lack of information is a key barrier to switching



GREEN3: Thinking realistically, how likely is it that your household will switch to a 'green' tariff in the next 5 years? Base: Total 2021 (4037)

Key messages: Green tariffs



Half of all consumers (51%) report that they are on a green tariff currently or say they are likely to switch to one in the next 5 years.

There is a high level of uncertainty and confusion about green tariffs, with 3 in 10 (31%) saying they don't know whether they are on a green tariff or not. Around 1 in 3 (31%) think a green tariff means all the energy they use is generated from sources like wind, solar or hydro or biomethane.

The same proportion say that they either don't know or don't have enough information to decide if they are likely to switch to a green tariff as say they are likely to switch. Only 7% reject switching to a green tariff.

Low carbon technologies

Low carbon technology rejectors

Most consumers do not have any of the main types of low carbon technology in their home

25% have an electric vehicle, solar PV¹, smart appliances / heating controls or a heat pump

75% say they **do not have any of these types of low carbon technology** (EV, Solar PV, smart appliances / heating controls or a heat pump)

Groups less likely to have low carbon technologies:

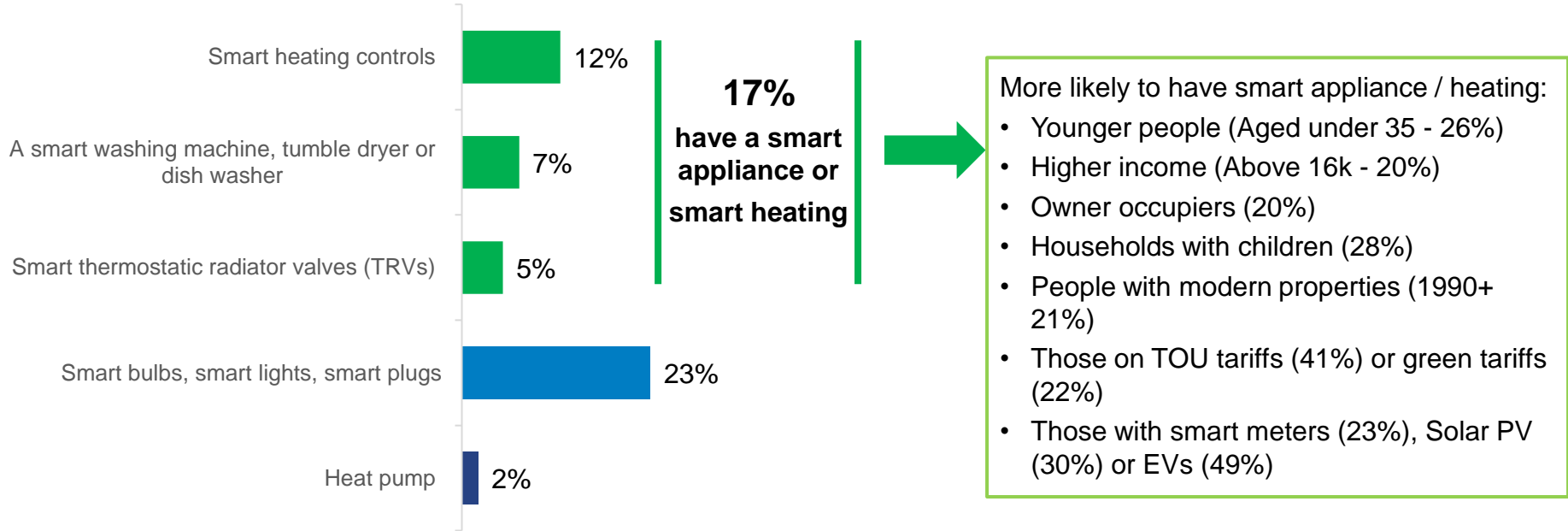
- Older age groups (65 years +): 79% have none of these
- C2DE (78%) and lower income households (below £16,000 pa): 84%
- Households without children: 79%
- Those disengaged in the energy market (haven't compared or switched in P12M): 82%
- Those without a smart meter (83%)
- Those not worried about climate change: 79%
- Market sceptics (81%), Contented Conformers (86%)

QBCHECK. Can we check, does your household have any of these things? Base: Total 2021 (4037). See engagement report for segment engagement profiles in 2021.

¹ Solar PV: Solar photovoltaic i.e. solar panels to generate electricity

Low carbon technologies available in home (1)

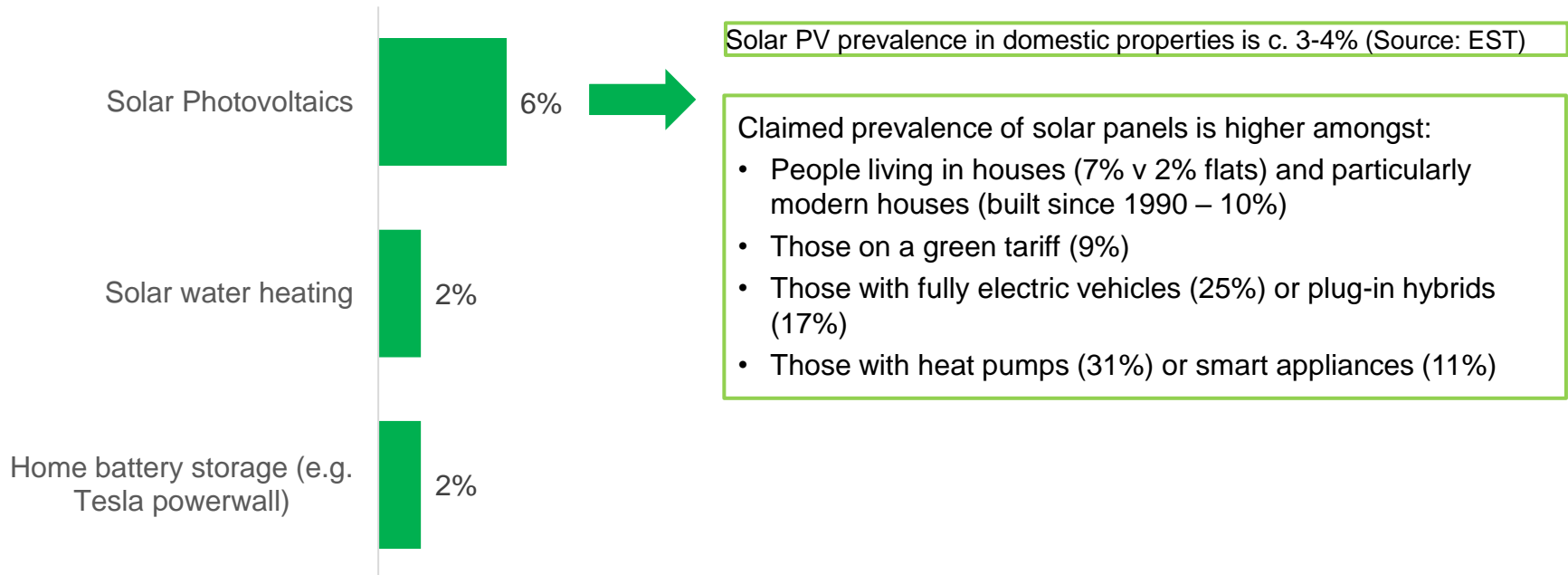
Just under a fifth have a smart appliance or smart heating controls. Younger people and households with children are more likely to have smart appliances / heating



QBCHECK. Can we check, does your household have any of these things? Base: Total 2021 (4037)

Low carbon technologies available in home (2)

One in twenty said they have Solar PV* at home. Those with Solar PV are also more likely to have electric vehicles and other types of low carbon technology*

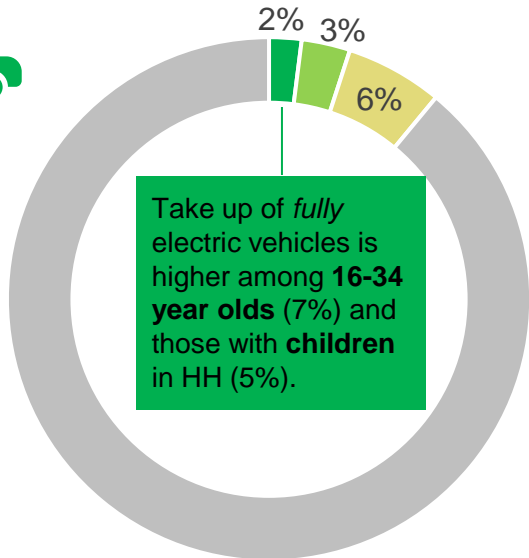


QBCHECK. Can we check, does your household have any of these things? Base: Total 2020 (4608) 2021 (4037)

* Solar photovoltaic (solar panels to generate electricity), 'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps.

How many people, and who, have electric vehicles?

One in ten say they have an electric or hybrid vehicle, similar to 2020. Ownership of fully electric vehicles is highest among the younger age groups



- Fully electric vehicle
- Plug-in hybrid
- Non plug-in hybrid

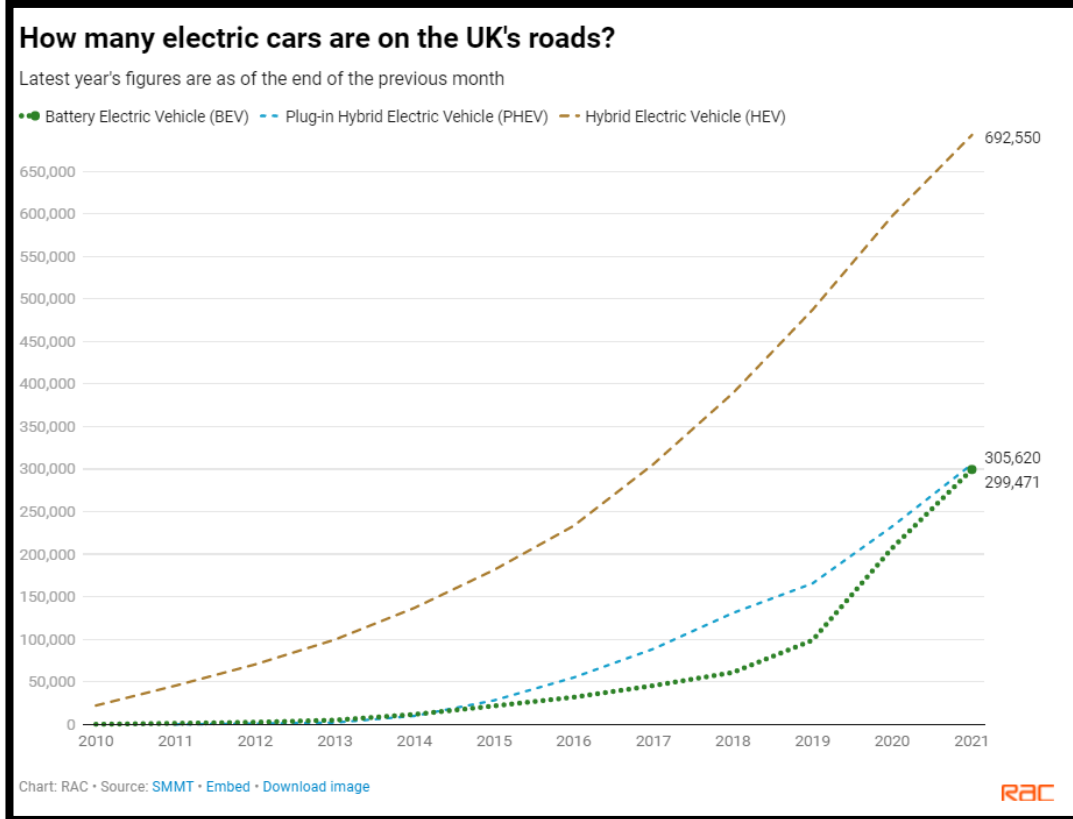
Owners of *fully* electric vehicles are more engaged with environmental issues:

- They are more likely to be worried about climate change (90% vs 80% on average) and more likely to be on green tariffs (62% vs 27%)

...and more engaged in energy generally:

- More likely to be on time of use tariffs (16% vs 3% on average)
- More likely to have a smart meter (81% have one vs 50% on average)
- More likely to have switched in the last 12 months (38% have switched vs 27% on average)

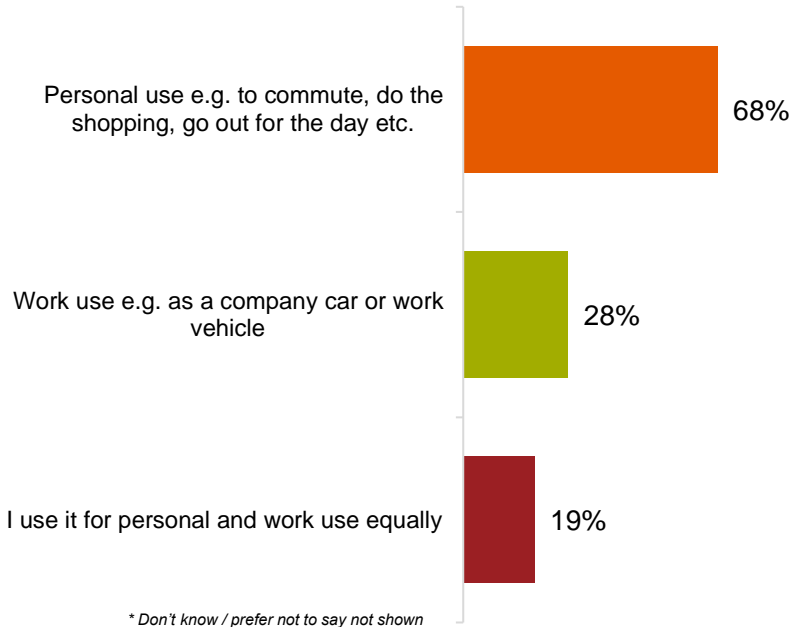
UK market data on electric vehicle numbers



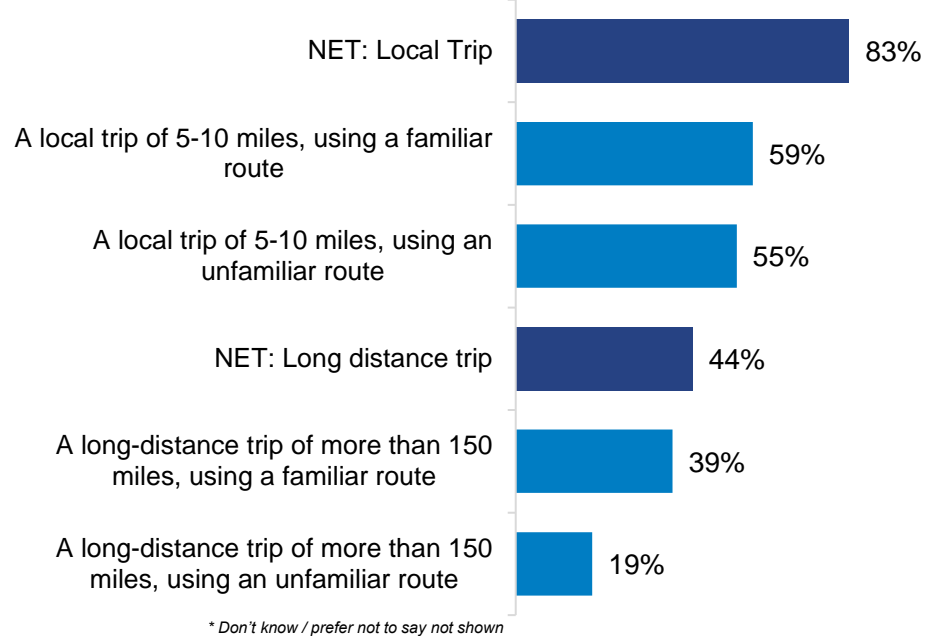
Usage of electric vehicles

Most EV owners use them for local trips, with just under half using them for longer-distance trips. Only a fifth use their EVs for long distance trips on unfamiliar routes

Main purpose of EV



Types of journey EV usually used for



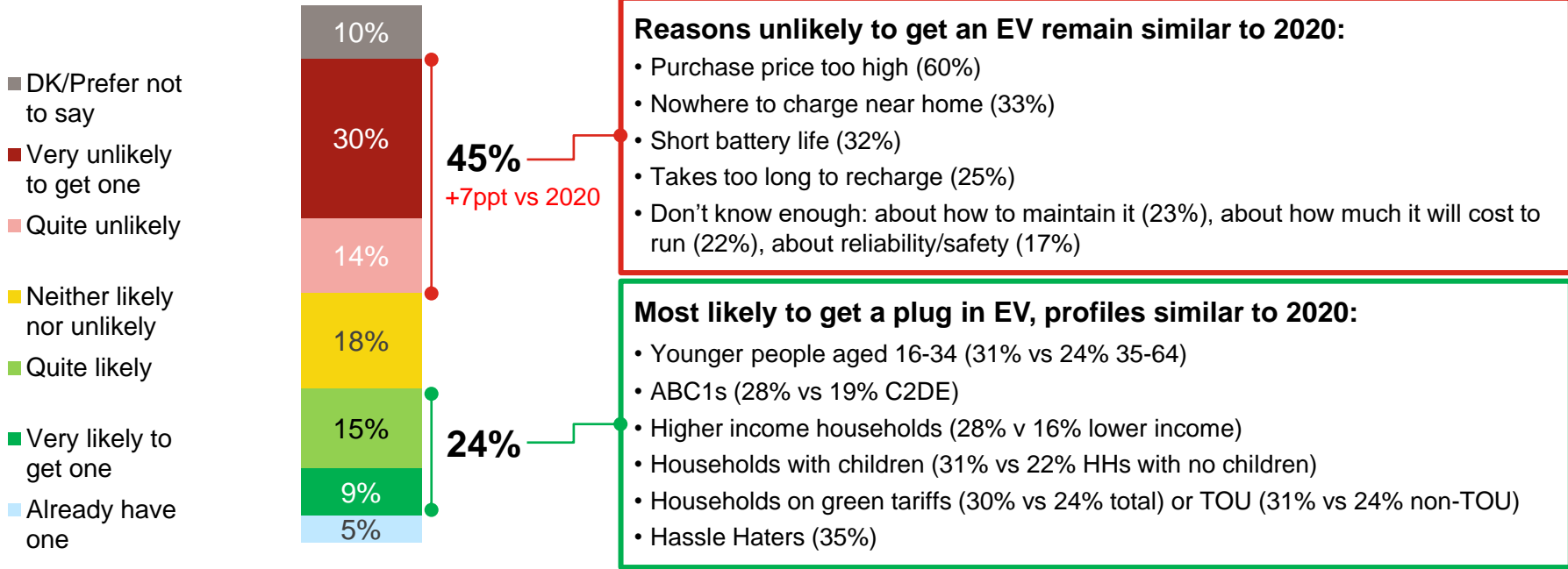
USEEV: For which of these purposes would you mainly use your electric vehicle? Base: 2021 All who have plug in electric vehicles (202)

HOWEV: For which of these types of journey would you usually use your electric vehicle? Base: 2021 All who have plug in electric vehicles (202)

Who intends to get an electric vehicle?

Around a quarter say their household intends to get an electric vehicle in the next five years, similar to 2020. However, the proportion unlikely to get an EV is higher than in 2020.

Price, charging issues, battery life, and lack of knowledge remain the main barriers.



QEV2. How likely would you be to change your household's car or van to an electric or plug-in hybrid one in the next five years? Base: Total 2021 (4037)

QEV3 Why do you say your household is unlikely to change to an electric or plug-in hybrid car or van in the next five years? Base: 2021 All unlikely to get an EV in the next 5 years (1730).

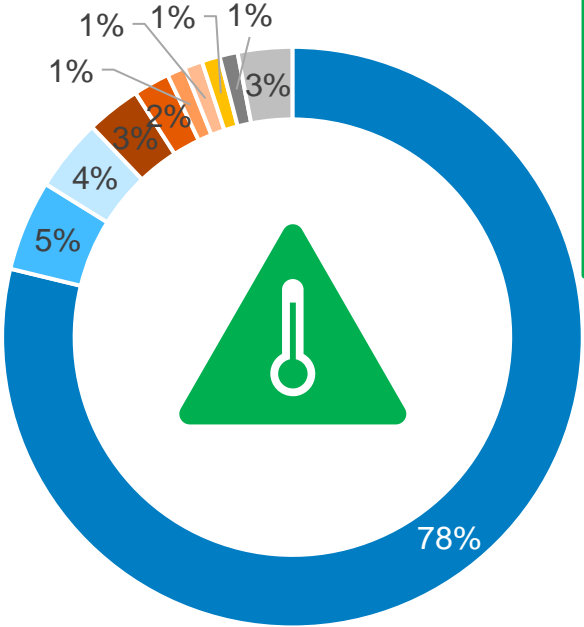
See engagement report for segment engagement profiles in 2021.

How do people heat their homes?

4 in 5 people have a gas central heating system in their home, stable since 2020.



- Gas central heating
- Electric storage heaters
- Electric heaters
- Oil/oil central heating/oil fired
- Coal/wood/smokeless fuel fires or stoves
- Gas fires
- District/communal heating
- Heat pump (air source, ground source or hybrid)
- No heating system
- Other/Don't know/Prefer not to say

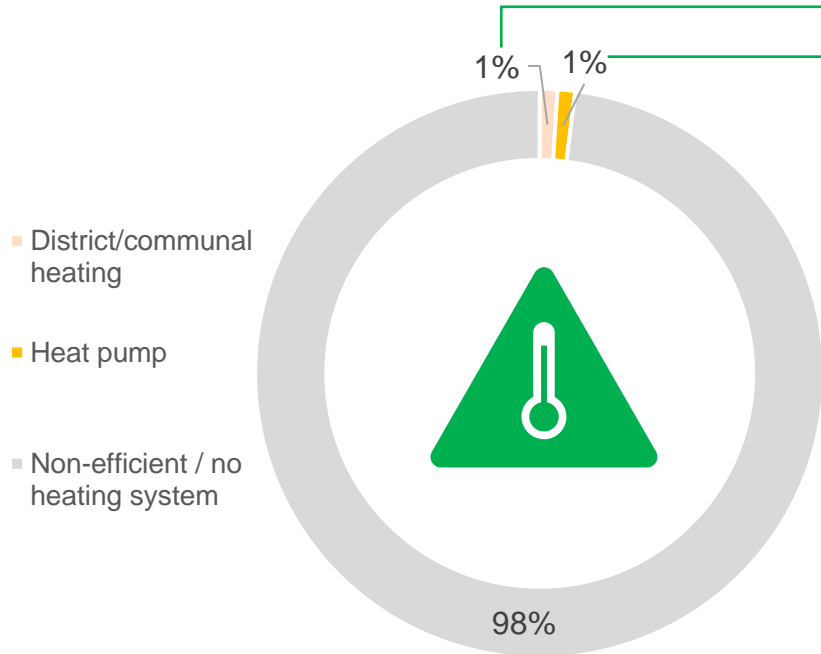


As in 2020, a very small number of respondents say they have a micro-combined heat and power system or hydrogen powered central heating. However, less than 1% of total sample say they have either of these heating systems.

QHEAT2. And which is the main heating system that your household uses to heat the majority of your home in the winter? Is it... Base: Total 2021 (4037)

How many people have low carbon heating?

Only 3% of those surveyed said they have an efficient heating system* in their home.



1% were on a heat network in 2021 (similar to 2020). Usage of heat networks is higher among:

- Those **living in newer flats (post-1990)** (5%) and **fully electric vehicle owners** (4%).

3% of new dwellings in England & Wales used heat pumps for central heating in the financial year ending 2019.

(Source: ONS)

Take up of heat pumps in our survey is higher among:

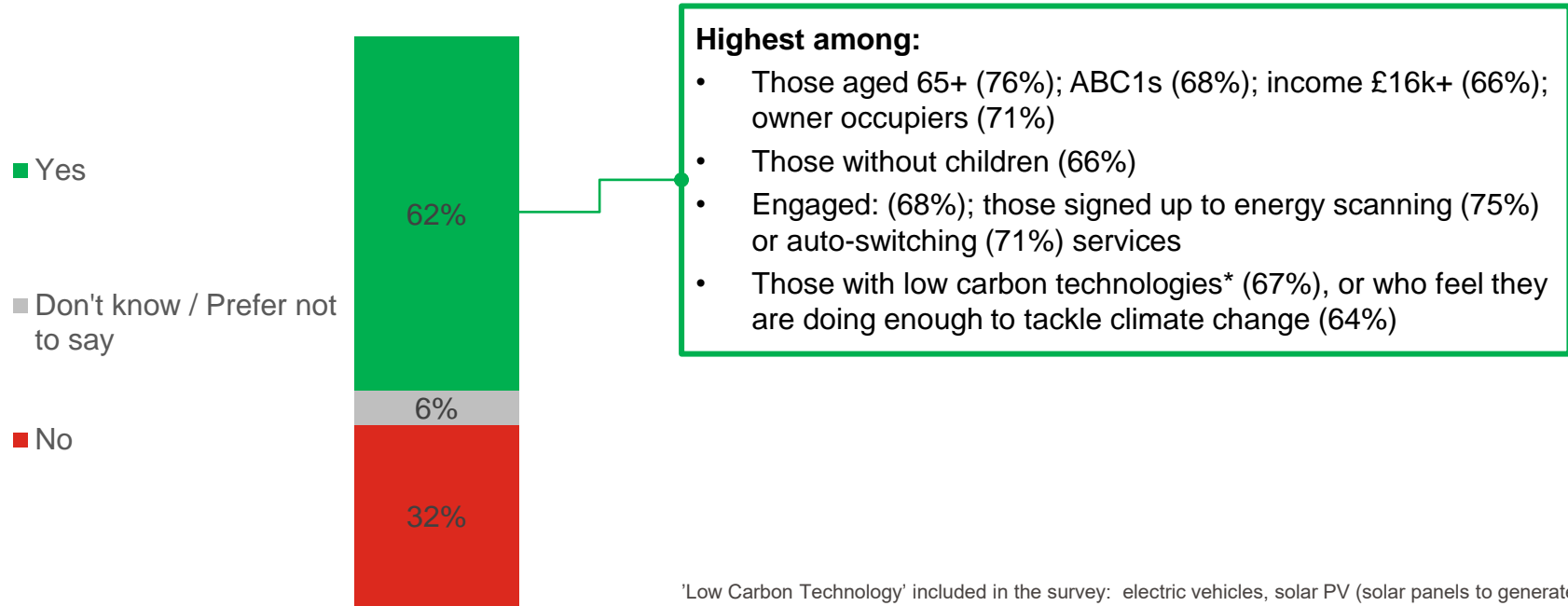
- **16-34 year olds** (6%); **households with children** (5%); those in **newer homes** (5%); those on **TOU tariffs** (13%);
- Groups who are more **engaged** –those signed up to auto-switching services (11%); those with a fully electric vehicle (15%), solar panels (11%) or smart appliances/heating (7%)

BCHECK. Can we check, does your household have any of these things? QHEAT2. And which is the main heating system that your household uses to heat the majority of your home in the winter? Is it... Base: Total 2021 (4037)

*Those on a heat network, with any type of heat pump, a micro-combined heat & power system or hydrogen powered central heating

Nearly two thirds are aware of plans to phase out gas boilers

Awareness is highest among older, more affluent and engaged groups.



*'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps.

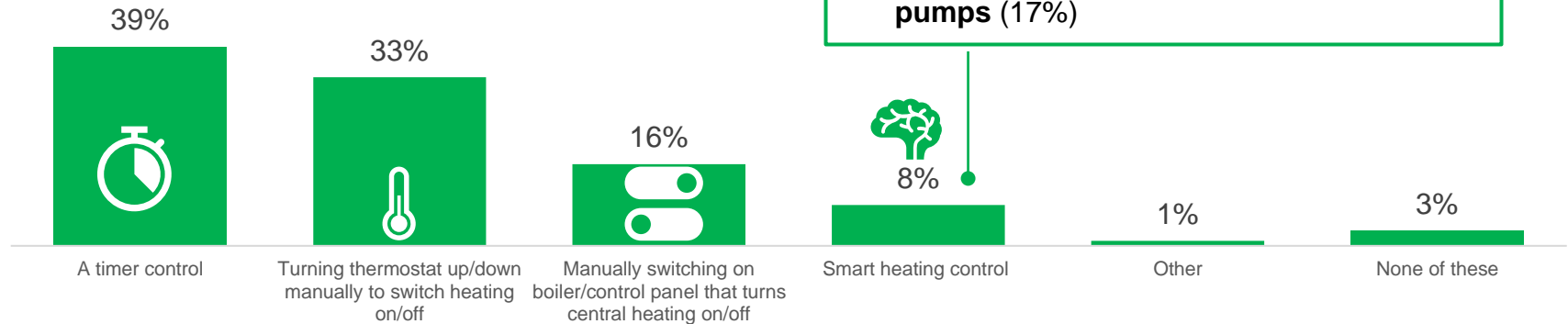
QHEAT6. In order to reduce the amount of emissions produced from people's homes, gas boilers may need to be replaced by other heating systems that produce less emissions. For example, from 2025 new build homes will no longer have gas central heating, and homeowners will be encouraged to replace gas boilers with low carbon heating sources, such as heat pumps. Before today, had you heard anything about this? Base: Total 2021 (4037). NB: question asked for first time in 2021.

How do households control their heating?

2 in 5 say they most often control their central heating using a timer. Use of smart heating controls is higher among groups that are engaged with plug-in vehicles and low carbon technology.

Most used methods of central heating control

58% of those with a heating system in their home have their heating set on timer



Highest among:

- **Plug-in vehicle owners** (13%)
- Those with **solar panels** (14%) and **heat pumps** (17%)

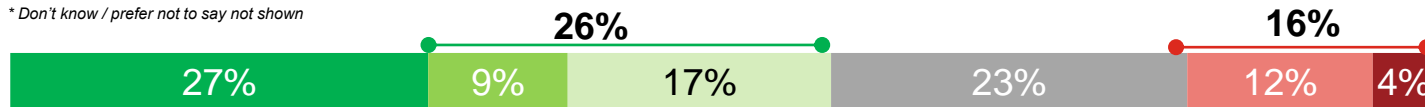
QHEAT3. Which of these do you use most often to control when your central heating goes on and off? QHEAT4. Is your heating timed to go on and off at certain times of the day? Base: 2021 All with heating system in home (except fuel fires or stoves) (3678). NB: question asked for first time in 2021.

Actions/intentions to limit household energy use / emissions

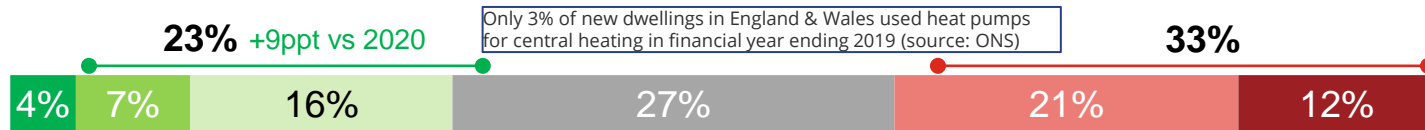
A quarter of owner-occupiers have upgraded their home to be more energy efficient, and a quarter intend to do so in the future. Prevalence of low carbon heating remains low. While owner-occupiers are still more likely to say they won't install a low carbon system in the future than to say they will, intention has increased since 2020 (14%).

■ I/we have already done this ■ Definitely will ■ Probably will ■ Might or might not ■ Probably will not ■ Definitely will not
 * Don't know / prefer not to say not shown

Upgrade or **improve how energy efficient your property** is (e.g. installing insulation, draught proofing, new windows)



Install a heating system to your property that produces fewer carbon emissions (e.g. a heat pump or hydrogen boiler)



Intention to improve energy efficiency of property higher among:

- 16-34 year olds (48%), ABC1 (27%), higher income households (27%), households with children (40%), Hassle Haters (44%)
- Those in modern (1990+) houses (28%)
- HHs on Green Tariffs (32%) or TOU tariffs (44%)
- Those who have a type of low carbon technology (33%)
- Those worried about climate change (29% vs 12% among those not)

Intention to install low carbon heating system higher among:

- 16-34 year olds (42%), ABC1 (24%), higher income households (24%), households with children (33%), Hassle Haters (42%)
- Those in modern (1990+) houses (27%)
- HHs on Green Tariffs (30%) and TOU tariffs (52%)
- Those who have a type of low carbon technology (32%)
- Those worried about climate change (26% vs 10% among those not worried)

CHANGES1. Thinking about your own home, realistically, how likely are you or your household to do these things? Base: 2021 all owner occupiers (2853), owner occupiers who do not have low carbon heating (2790) 'Low Carbon Technology' included in the survey: electric vehicles, solar PV (solar panels to generate electricity), smart appliances, smart heating controls, heat pumps.. See engagement report for segment engagement profiles in 2021.

Energy efficiency upgrade / low carbon heating rejectors

Older age groups and those not worried about climate change are more likely to say they won't make energy efficiency upgrades or install low carbon heating. Property age may be a barrier to installing low carbon heating, with those in older properties more likely to say they won't install in the future

Groups more likely to say they **won't upgrade or improve** how **energy efficient** their property is (16% on average)

- Older age groups (65 years +): 19%
- Those not worried about climate change (32%)
- Market Sceptics (21%)

Groups more likely to say they **won't install a low carbon heating system** (33% on average)

- Older age groups (65 years +): 40%
- Households without children: 36%
- Those not worried about climate change (60%)
- Those in older properties (pre 1930 –35%)
- Market sceptics (41%) and savvy searchers (37%)

CHANGES1. Thinking about your own home, realistically, how likely are you or your household to do these things? Base: 2021 all owner occupiers (2853), owner occupiers who do not have low carbon heating (2790). Low carbon heating included in the survey: heat networks, heat pumps, micro-combined heat & power systems, hydrogen powered heating. See engagement report for segment engagement profiles in 2021.

Barriers to low carbon heating and energy efficient improvements

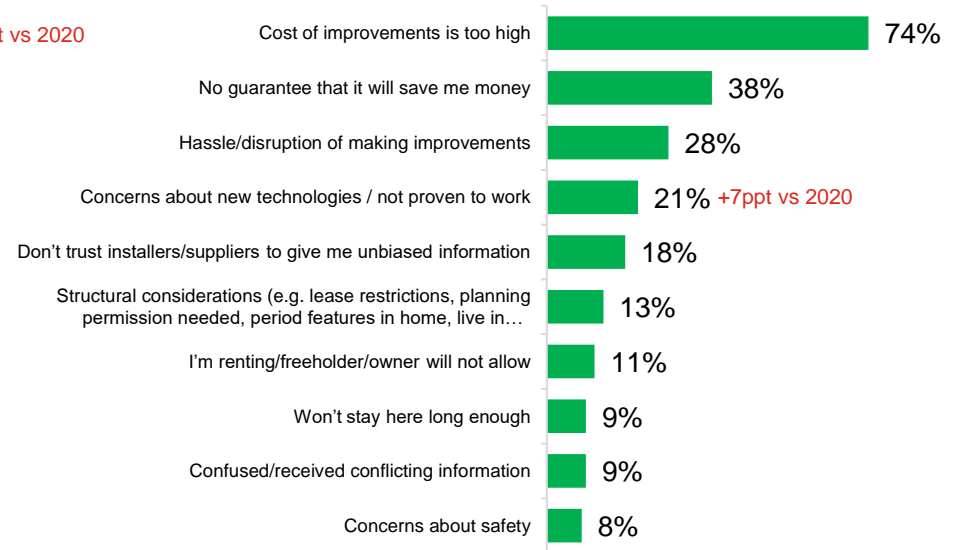
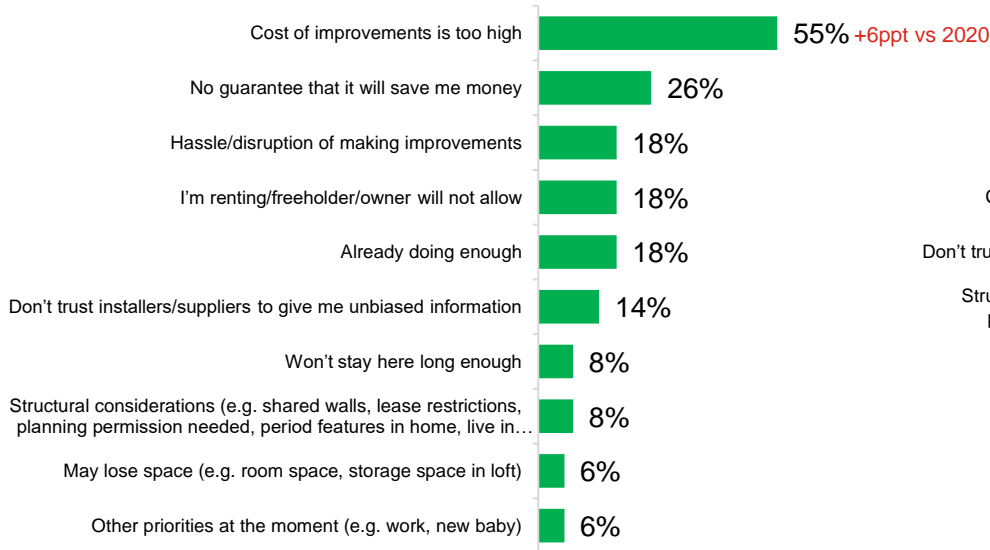


Cost is the main barrier to making improvements, particularly for low carbon heating, and there are also concerns about low carbon heating being a new / unproven technology. These perceptions increased from 2020, which may have been influenced by increased media activity on the topic in the run up to fieldwork.

Top ten things that stop households from...

Upgrading or improving how energy efficient their property is

Installing a heating system that produces fewer carbon emissions



CHANGES2. Is there anything in particular that stops you and your household from installing a heating system to your property that produces fewer carbon emissions (e.g. a heat pump or hydrogen boiler) / upgrading or improving how energy efficient your property is (e.g. installing insulation, draught proofing, new windows)? Base: 2021 all not planning to make EE upgrades (596), all not planning to install low carbon heating systems (1097). Source: Ofgem/Ipsos Consumer Survey 2021

Key messages: Low carbon technologies



A quarter (25%) have one of the main types of household low carbon technology (EV, Solar PV, smart appliances / heating controls or a heat pump). 2% own a fully electric vehicle, and only 1% own a heat pump. Older people, lower income households and disengaged consumers are less likely to have any low carbon technology at home, suggesting that lack of awareness of energy usage and the associated cost could be a limiting factor. Increasing awareness of energy costs and the potential savings benefits from low carbon technology may be a means of increasing take-up.

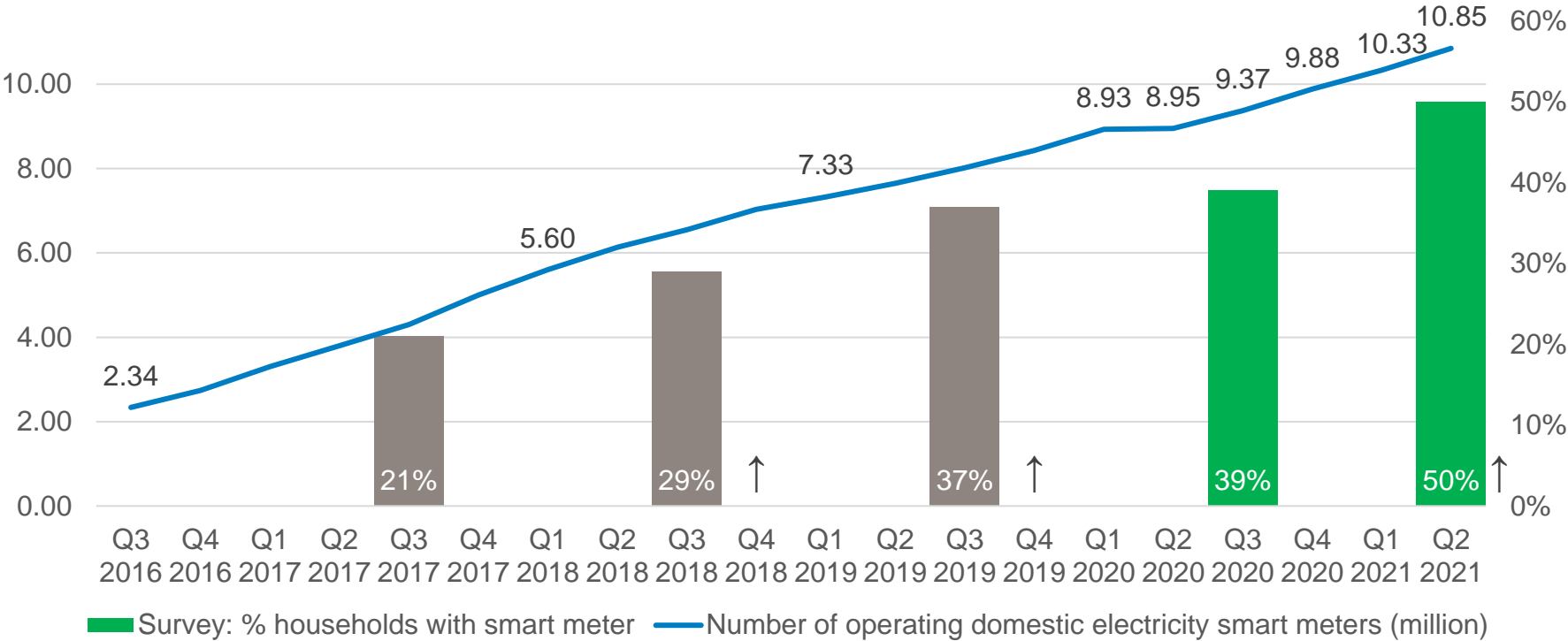
The proportion saying they are unlikely to get an EV has increased since 2020 (45% vs 38% in 2020), while the proportion intending to get one remains unchanged (24%). Price, charging issues and battery life remain the main barriers. This suggests more needs to be done to raise awareness of the potential cost savings and to address these concerns. Intention to get an EV in the next 5 years is higher among younger people, higher income households and households with children.

While 17% have a smart appliance or smart heating controls, timer controls were the most common method of central heating control. Less than one in ten currently use smart heating controls to control their central heating.

Intention to install low carbon heating systems has increased to 23%, but actual prevalence remains low (4%). Half (53%) have either made energy efficiency upgrades to their homes or intend to in the future, unchanged since 2020. Cost is the main barrier to both, with scepticism about potential savings also an issue. Concern about a new/unproven technology is also a barrier to take-up of low carbon heating. Property age may be another barrier to low carbon heating, with those in older properties more likely to say they won't install in the future.

Smart meters and Flexibility

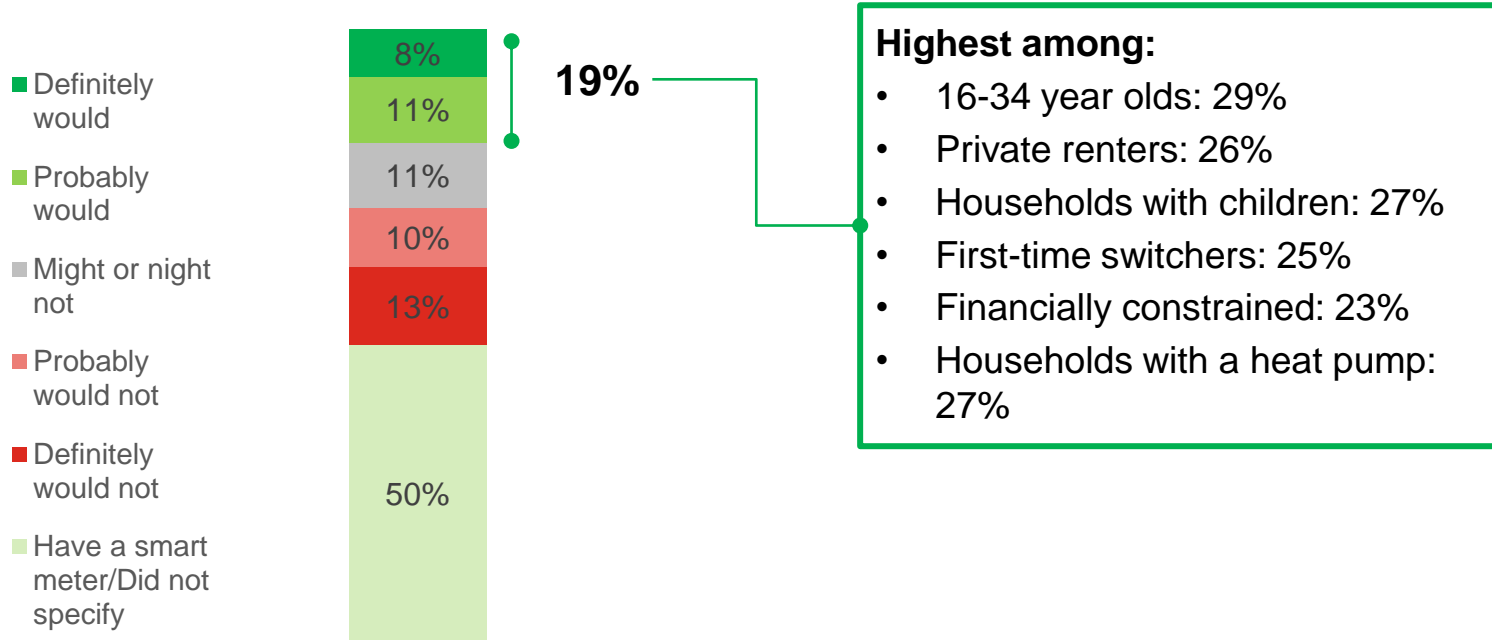
The rate of smart meter installation has picked up again in 2021 as COVID-19 restrictions have eased



SM4 Do you have a smart meter? Base: Total 2021 (4037); 2020 (4608); 2019 (4001); 2018 (4064), 2017 (4001) NB Question change over time, comparisons should be treated with caution. ↑↓ indicate significant change between waves Smart meter operational data taken from <https://www.gov.uk/government/statistics/smart-meters-in-great-britain-quarterly-update-september-2020>

Who wants to install a smart meter?

Of all consumers, 1 in 5 don't have a smart meter yet and say they are likely to install one. This is highest among younger people, those with children and those with heat pumps.



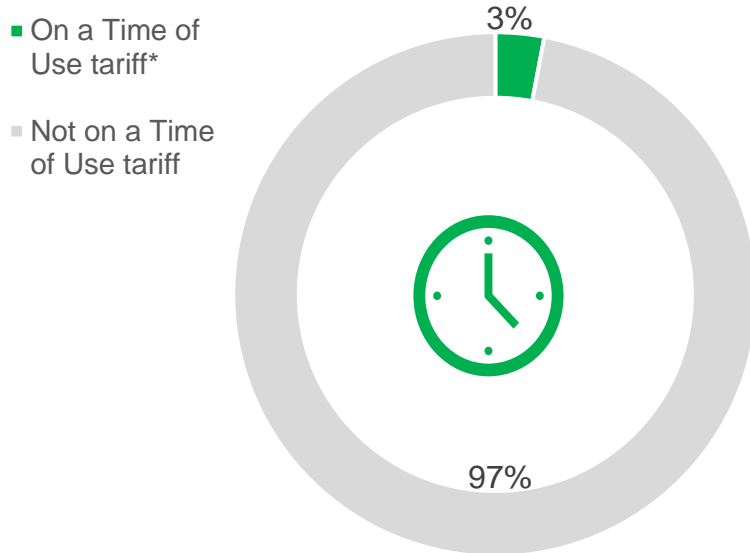
SM9. How likely or unlikely would you be to install a smart meter in the next two years? Base: Total 2021 (4037).

Households with smart meters

- **Significant differences remain** between those with and without smart meters.
- There is a **significant difference in engagement levels** – **66%** of those **with smart meters** engaged in the energy market in the past 12 months, compared to **60%** of those **without smart meters**.
- They are significantly more likely to say they understand **how much energy is used around the household** than those without smart meters (80% vs 71%), and be **concerned about their energy usage** (60% vs 55%). They are also more likely to **monitor their energy use** (51% vs 23%).
- Those with smart meters are also **more likely to have a plug-in vehicle** (7% vs 2% of those without a smart meter) and **low carbon technologies** in their home (32% vs 17% of those without a smart meter).

How many people, and who, are on a Time of Use tariff?

TOU tariff holders are a minority. They tend to be more engaged with low carbon technologies but are also more likely to be vulnerable



*Defined in this study as consumers who have a smart meter, pay different amounts for energy depending on when they use it but are not on Economy 7 or 10. Although participants were instructed to select a different response if they are on an Economy 7 or 10 tariff, some may have selected the Time of Use response.

SM4: Does your household have a smart meter? Q13: Do you pay different amounts for your energy depending on when you use it. For example, energy costs you less at night-time or in the middle of the day? ECON: Is your household on one of these meters or tariffs? Base: Total 2021 (4037)

Take up of TOU tariffs is higher among:

- **First-time switchers** (8%) and **fully electric vehicle owners** (16%).

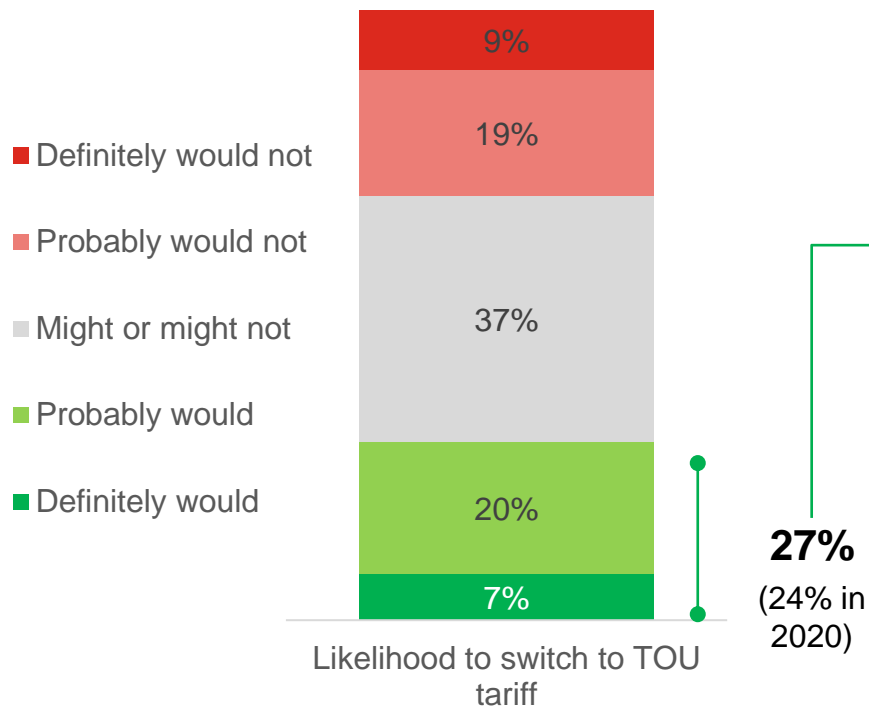
TOU tariff holders are more engaged with low carbon energy:

- They are more likely to have a **heat pump** (13% vs 2% among total sample) or **smart appliances/heating** (41% vs 17% among total sample).
- They feel they are **doing enough to tackle climate change** (70% vs 56% among total sample).

However, they are also more likely to be vulnerable consumers:

- They are more likely to be **financially constrained** (53% vs 42% among total sample) and impacted by **COVID-19** (35% vs 25% among total sample).
- They are also more likely to be on a **PPM** (18% vs 11% among total sample).

A quarter of those not currently on a TOU tariff say they would switch to a TOU tariff – though most are ambivalent



Likelihood to switch to a TOU tariff if offered one is higher among:

- Households with children (32%)
- Those on a green tariff (30%) or likely to switch to one (39%)
- Those with smart meters (31%)
- Those with low carbon technologies (31%)

*'Low Carbon Technology' includes Plug-in EVs, Solar PV, smart appliances / heating controls, heat pump

QPEAK4. And if a time of use tariff was available, how likely would your household be to switch to it? Base: 2020 Aware of peak and off-peak periods, not on a TOU tariff and not in the process of switching (3160); 2021 All who are not on a time of use tariff (2707). ↑↓ indicate significant change between waves

How big a saving would it take for people to switch to a TOU tariff?



Around 1 in 5 consumers say they would switch to a TOU tariff regardless of the cost saving. On average, the minimum saving people would switch for was £110.

On average, the minimum saving people would switch for was £110



Would switch for £50



Would switch for £100



Would switch for £150



Would switch for £200

- 18% of consumers say they **would switch** to a TOU tariff **regardless of the cost saving** they could make
- 14% of consumers **would not switch regardless of the cost saving**, or were not sure
- 6% **did not know** whether they would switch or not

Who would choose a flexible tariff?

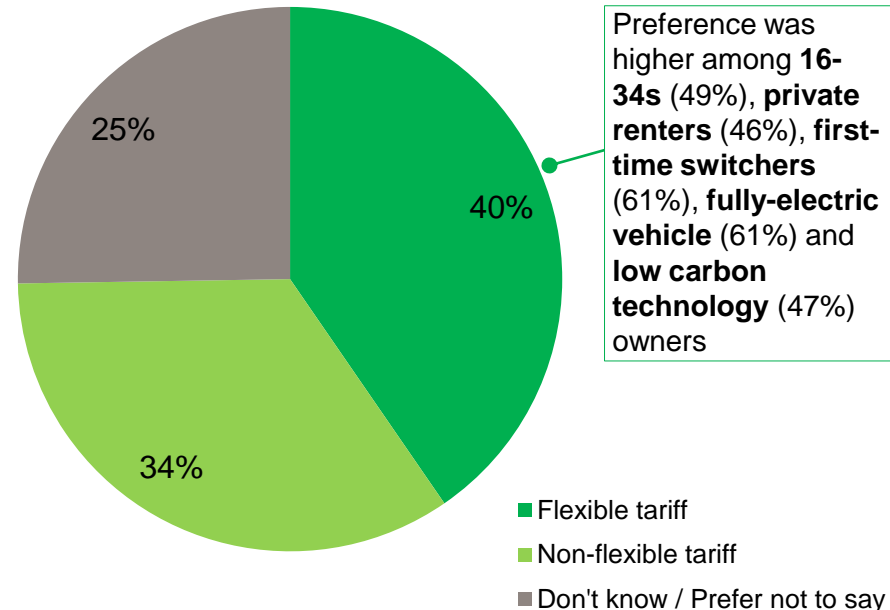
2 in 5 would choose a flexible tariff if offered one. Flexible tariffs were chosen by less affluent groups, but also those engaged with low carbon technologies.

The **flexible tariff** was described as:

- The price of a unit of energy would vary over the day, depending on how much energy people are using.
- Consumers would need to monitor the price and change when they use energy. If they use energy at busier times, they could pay more than the **non-flexible tariff**. If they monitor and change when they use energy, they could pay less.

The **non-flexible tariff** was described as:

- The price of a unit of energy would be fixed, regardless of when they use it. They would not have to monitor the price.
- They would not be able to access the lower prices that consumers on the **flexible tariff** would pay.

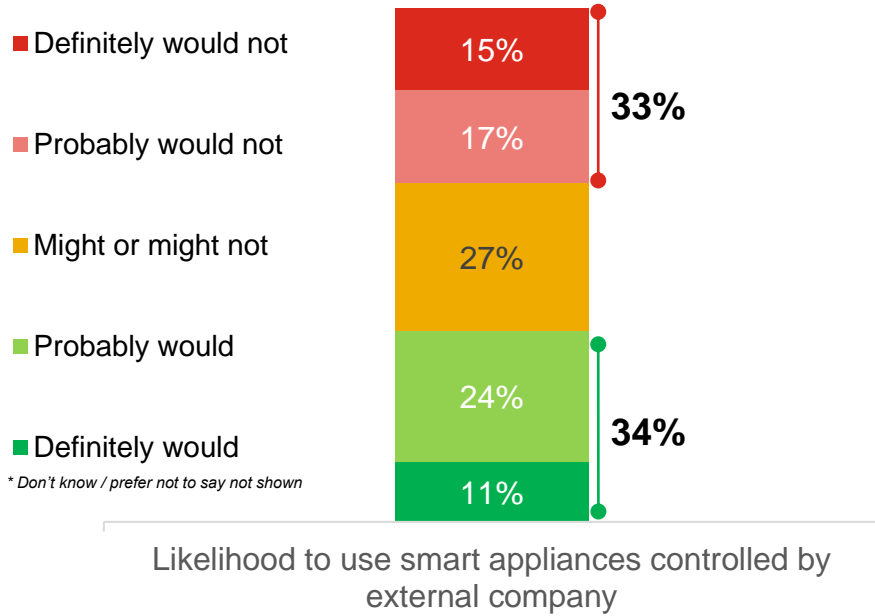


*'Low Carbon Technology' includes Plug-in EVs, Solar PV, smart appliances / heating controls, heat pump FLEXNON. If you were given the choice of these two tariffs, which would you prefer? Base: Total 2021 (4037). NB: question asked for first time in 2021.

2021 fieldwork dates: 19th August – 17th September 2021

Likelihood to use appliances externally controlled

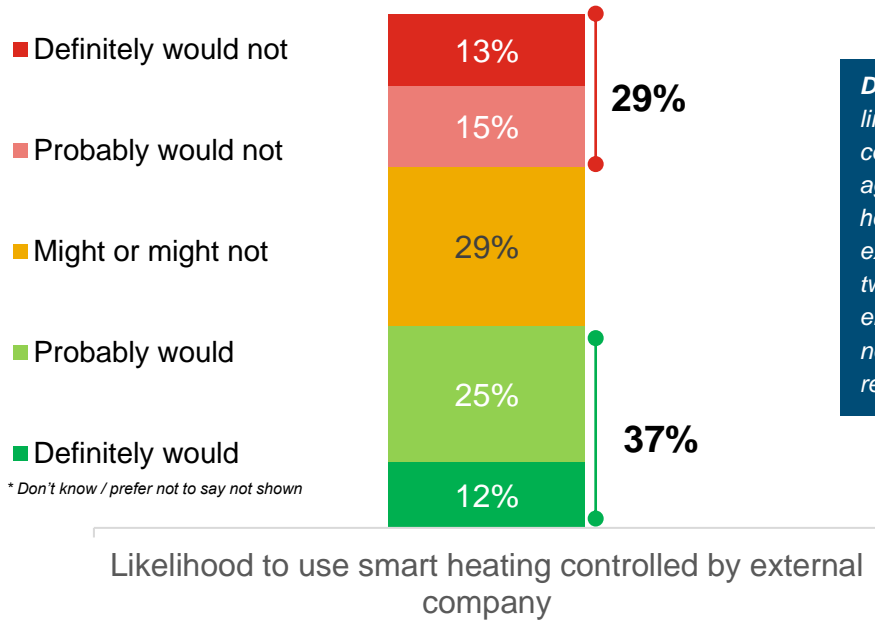
Around a third say they would use smart appliances controlled by external companies, with a similar proportion saying they wouldn't, unchanged since 2020



Description provided in survey: Smart appliances, for example a washing machine, could be linked to an external company, such as your energy supplier. The external company would monitor when the cost of energy falls, and with your agreement would remotely manage when your appliance runs. To use the appliance you would load it and set it as ready, and the external company would start the appliance when the cost of energy falls. You could still use the appliance in the same way as usual, by loading it up and turning it on to run; or you could use a timer or app yourself to programme when it would run.

Likelihood to use heating externally controlled

Consumers are slightly more open to smart heating controlled by external companies

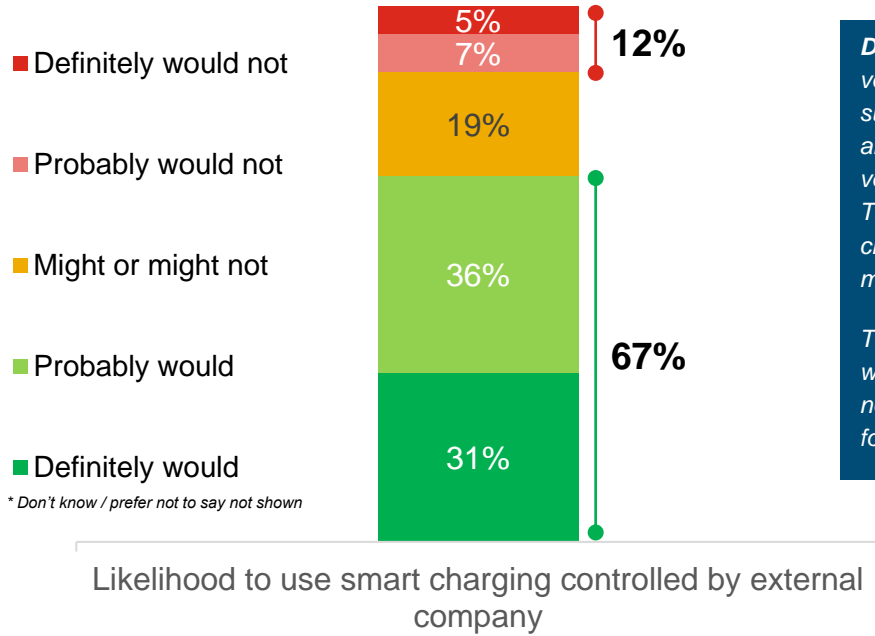


Description provided in survey: Smart controls for home heating could be linked to an external company, such as your energy supplier. The external company would monitor when the cost of energy falls, and with your agreement would remotely manage your home heating. You would set your home's heating timer and thermostat to the temperature you prefer. The external company may reduce the temperature on your thermostat by one or two degrees for a short period of time at peak times to manage demand on the energy network at busy times. The difference should be very small and should not be noticeable, and in return your household would receive a small financial reward in the form of a cheaper energy tariff or a credit on your energy bill.

* Don't know / prefer not to say not shown

Likelihood to use EV charging externally controlled

Consumers with a plug-in vehicle are generally open to smart charging controlled by external companies



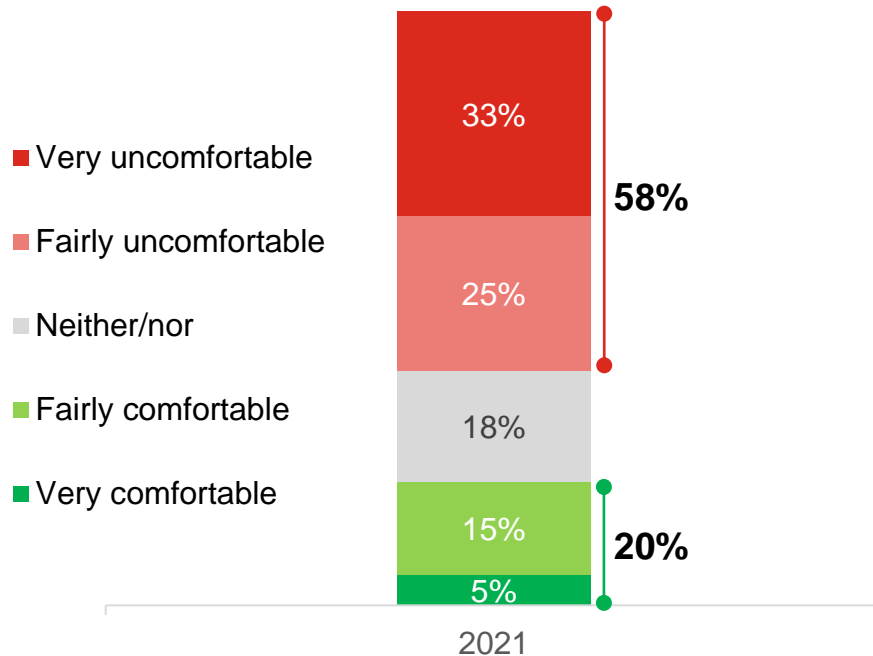
Description provided in survey: Smart controls for charging plug-in electric vehicles at home could be linked to an external company, such as your energy supplier. The external company would monitor when the cost of energy falls, and with your agreement would remotely manage how quickly and when your vehicle charges. You would plug in your vehicle to charge in the usual way. The external company may slow down the amount of power being used to charge the vehicle, or stop it altogether for a certain time period to help them to manage demand on the energy network at busy times.

The vehicle would still be ready for you to use when you need it because you would have told the supplier how much battery charge you need and when you need it. In return your household would receive a small financial reward in the form of a cheaper energy tariff or a credit on your energy bill

INTCONT1EV: How likely would you be to use a system like this to charge your electric vehicle in order to reduce the cost of your household's energy bills? Base: Plug-in vehicle owners (202)

Comfort with appliances / heating being externally controlled

The concept of an external company controlling appliances, heating or EVs is uncomfortable for most. Only a fifth are comfortable (similar to 2020). Lack of trust is a key barrier, with people concerned about safety, reliability and sharing data and information with companies



Why feel uncomfortable?

Concerns about when switch on / safety (e.g. risk of fire, flooding) (58%)

Concerns company might not switch things on (54%)

Wouldn't trust the company with this information (52%)

Concerns around data sharing (50%)

Concerns around cost of appliances (40%)

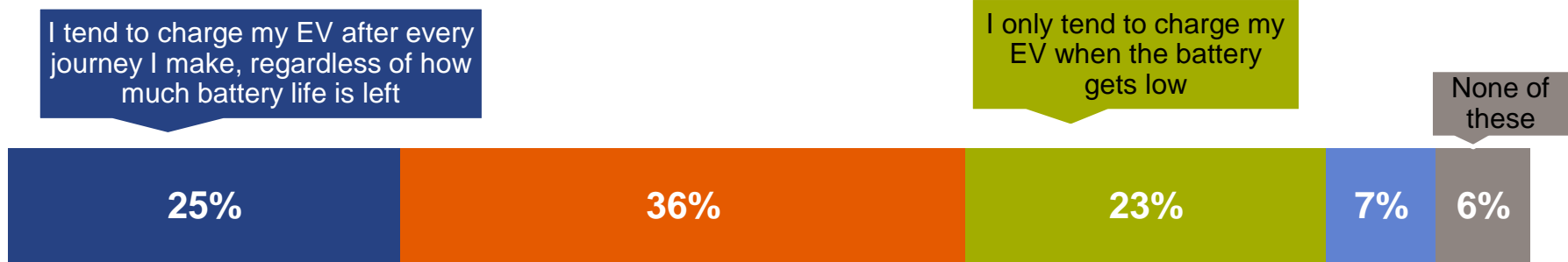
Concerns around internet access / no internet (19%)

INTCOMF: How comfortable / uncomfortable would you feel about an external company controlling when appliances or heating run or when plug-in electric vehicles charge? Base: Total 2021 (4037)

WHYCOMF: Why do you say you would feel like that about using the service we've just discussed? Base: 2021 All participants who are uncomfortable (2356)

Plug-in vehicle charging habits (1)

Most charge their electric vehicles at home, with a conventional charger most commonly used.



* Don't know / prefer not to say not shown



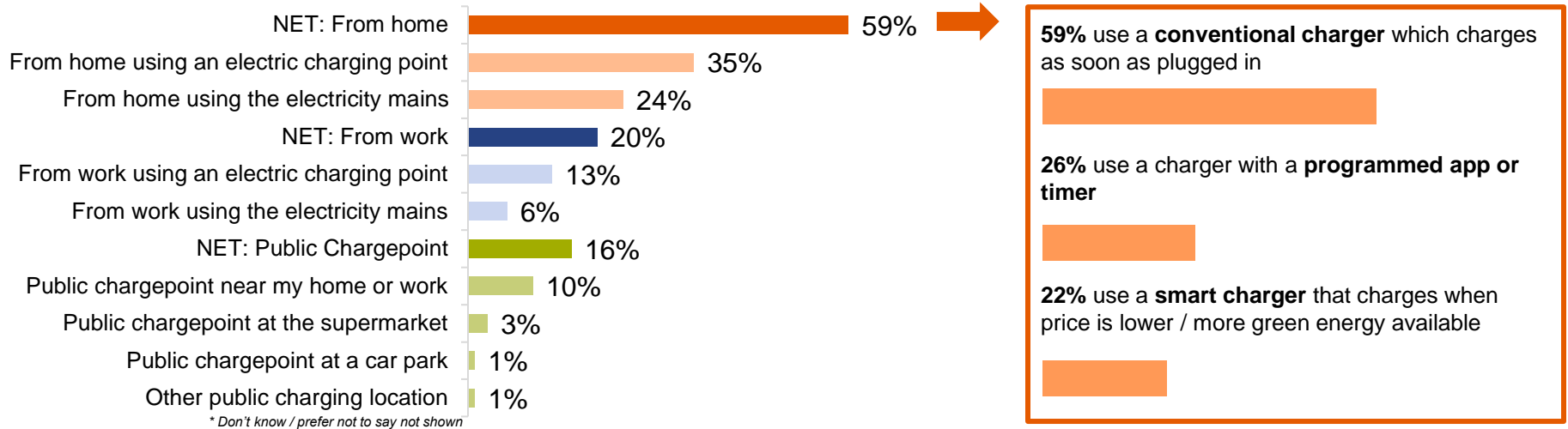
25% of electric / plug-in hybrid owners say they charge them at **peak energy times** (4-8pm on weekdays)

HABITEV: Which of the statements below, if any, best describe how you prefer to charge your main electric vehicle? Base: 2021 All who have plug in electric vehicles (202)

TIMEEV: What time of day do you usually charge your electric vehicle(s)? Base: 2021 All who have plug in electric vehicles (202)

Plug-in vehicle charging habits (2)

Most charge their electric vehicles at home, with a conventional charger most commonly used. A high proportion of plug-in EV owners report they are not on TOU tariffs

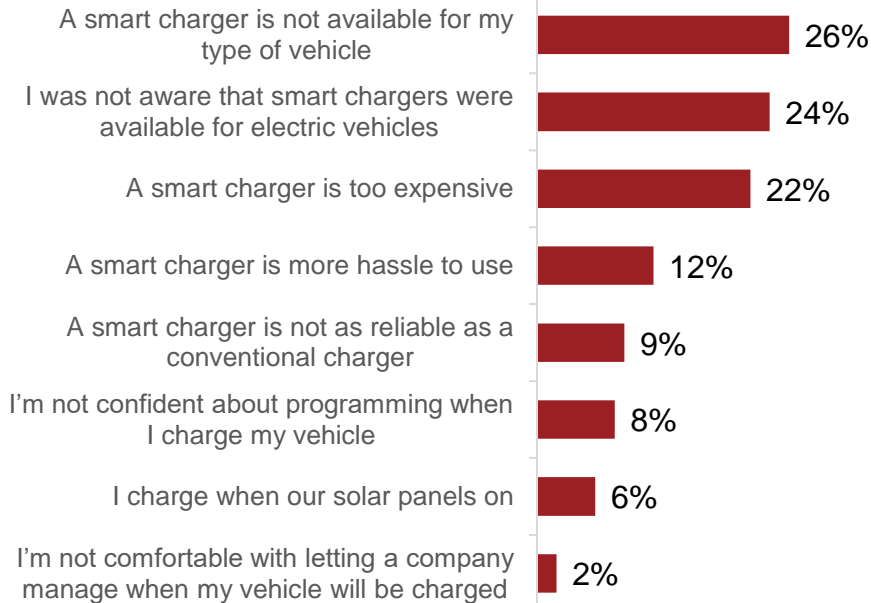


87% of electric / hybrid plug-in owners report they are **not** on TOU tariffs

Conventional and smart chargers

Availability and awareness of availability are barriers to take up of smart chargers, with cost also an issue

Reasons use a conventional charger at home instead of smart charger



* Don't know / prefer not to say not shown

User experiences of smart chargers

"As I'm tech savvy its really easy. Get on the iPad/phone and you can see everything about the charge in your car. I sincerely recommend this method."

"I can start, stop, schedule a charge without going to the charger. The charger recognises price fluctuations and can charge when it is cheaper."

"It allows me to charge when the rate is cheap. Rates can be expensive during other times"

Key messages: Smart meters and Flexibility

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Smart meter installation rates have picked up after a slight plateau in 2020 due to COVID-19 restrictions – in 2021, 50% of households say they have a smart meter vs 39% in 2020. Those with smart meters tend to be more engaged and aware/concerned about energy use in their home compared to those without smart meters. They are also more likely to have a plug-in EVs and low carbon technologies in their home. A fifth say they don't have a smart meter and would install one – particularly younger people and those with plug-in EVs.

Penetration of Time of Use (TOU) tariffs is low – only 3% think they are currently on one. Uptake is higher among those who are more engaged with energy and who have a fully EV. The opportunity of lower energy bills depending on when energy is used may be a way of engaging traditionally unengaged groups. The average minimum saving that people say they would switch to a TOU tariff for is £110.

On smart appliances/heating controls, consumers were split on whether they are likely to have these controlled by external companies: around a third (34% appliances, 37% heating) say they are likely to and a third (33% appliances, 29% heating) say they are unlikely. Three fifths (58%) say they are uncomfortable with an external company controlling appliances, heating or EV charging. Safety, reliability and sharing data and information with companies are all significant concerns (similar to 2020).

Key messages: Smart meters and Flexibility (continued)



The charging habits of plug-in vehicle owners suggest that many of them do not take advantage of cheaper electricity rates. Among this group, raising awareness of the benefits of TOU tariffs and the availability of smart chargers may be effective.

While most (59%) charge their electric vehicle at home, only around a third of plug-in vehicle owners (36%) plan when they are going to charge to get the best price, and a quarter (25%) charge during peak energy times.

Among those who charge at home, a conventional charger is most commonly used with availability, awareness and cost the main barriers to uptake of smart chargers. Yet, there is an opportunity for greater use of smart chargers, as most consumers with a plug-in vehicle (67%) are open to smart charging controlled by external companies. While plug-in vehicle owners are more likely to have TOU tariffs than the general population, a majority (87%) report they are not currently on a TOU tariff.

Ipsos MORI's standards and accreditations

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