Citizens' Panel for an accessible and affordable household vision of Net Zero

Main report

November 2024

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Acknowledgements

This Citizens' Panel included significant inputs from experts on the subject of climate change, Net Zero and household choices, and guidance from an Oversight Group. The authors would like to thank the citizens who took part, and the following for their contributions to this report and the Citizens' Panel process.

Specialists and the workshops they presented in

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Prof. Rebecca Willis	Lancaster University	Workshop 2
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With thanks to the Oversight Group for the provision of independent advice and oversight on the project.

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How to use this report

The relevant sections of the report for Citizens' Panel practitioner, academic researcher or policymaker are outlined in the table below, or see the **Summary report for policymakers** here.

What are you looking for?	Section of the report
If you are a Citizens' Panel practitioner, researcher, or policymaker seeking to understand more about the process and approach to the Citizens' Panel.	**Chapter 1, 4 and 8**
If you are a policymaker, researcher, or academic, seeking to understand participants' **overall** views on the acceptability of household choices in reaching Net Zero.	**Executive summary and Chapter 7**
If you are a policymaker, researcher, or academic, seeking to understand participants' initial awareness of the topics of climate change, Net Zero, household choices and policy levers.	**Chapter 2 and 3**
If you are a policymaker, researcher, or academic interested in public views relating to specific policy areas and sectors, go to:	
Surface transport	**Chapter 4**
Home heating	**Chapter 4**
Diet	**Chapter 5**
Aviation	**Chapter 6**

[3] Sarah Allan transitioned from her role at Involve to freelancing as a deliberative engagement specialist at the end of March 2024.

Glossary

- **Carbon dioxide (CO_2):** This is a greenhouse gas (see below). It is released through natural processes but is also produced through human activities. Since the 19th century, the atmospheric CO_2 concentration has increased by 50%.[4]

- **Greenhouse Gases (GHG):** These are gases in the earth's atmosphere which trap heat. While a certain level of these occurs naturally in the atmosphere, human activity since the Industrial Revolution has released large further quantities of greenhouse gases into the atmosphere, significantly increasing these levels. This has led to climate change and global warming. The main GHGs are carbon dioxide (CO_2), methane, and nitrous oxide.

- **Net Zero:** refers to the balance between the amount of GHGs produced and the amount removed from the atmosphere, effectively reducing the net impact on greenhouse gases in the atmosphere to zero.

Some terms were introduced within the context of the dialogue to help make clear the parameters of discussion. These are used within this report so that we reflect how things were described during workshops:

- '**Household choices'** were used to refer to the main surface transport, home heating, diet and aviation choices that households are expected to make as part of the transition to Net Zero, in the CCC's analysis and advice to government.

- '**Policy levers**' refer to tools or mechanisms that governments use to influence or guide the behaviour of households to achieve specific policy objectives, which in this Citizens' Panel are adopting household choices.

- '**Policy buckets**' are a way of grouping 'Policy levers' in similar themes. There are three 'Policy buckets' considered in this report: 'Suggest', 'Incentivise' and 'Change the Rules'.

    - Policy levers in the 'Suggest' policy bucket aim to suggest options to people through information provisions or to make things easier for people to do, such as improving infrastructure around public transport.
    - Policy levers in the 'Incentive' policy bucket aim to incentivise people by making things cheaper or more expensive e.g. through grants or tax changes.
    - Lastly, policy levers in the 'Change the Rules' policy bucket aim to change the rules around how people and businesses buy, sell or use things, such as phasing out the sale of petrol or diesel cars.

- '**Policy Packages**' refer to groups of different 'Policy levers' across 'Policy buckets'. In this report, there are three 'Policy Packages': Policy Package Orange, Policy Package Purple and the Citizens' Policy Package (see **Chapter 6**).

[4] As of 2023. https://climate.nasa.gov/vital-signs/carbon-dioxide/?intent=121#:~:text=Carbon%20dioxide%20in%20the%20atmosphere,in%20less%20than%20200%20years.

List of abbreviations

BIT	Behavioural Insights Team
CAA	Civil Aviation Authority
CAZ	Clean Air Zone
CCC	Climate Change Committee
CO_2	Carbon dioxide
EV	Electric vehicle
FQs	Follow-up questions
GHG	Greenhouse Gas
IFS	Institute for Fiscal Studies
KQs	Key questions
ULEZ	Ultra-Low Emissions Zones
VAT	Value Added Tax
VED	Vehicle Excise Duty

Contents

Executive Summary

Background

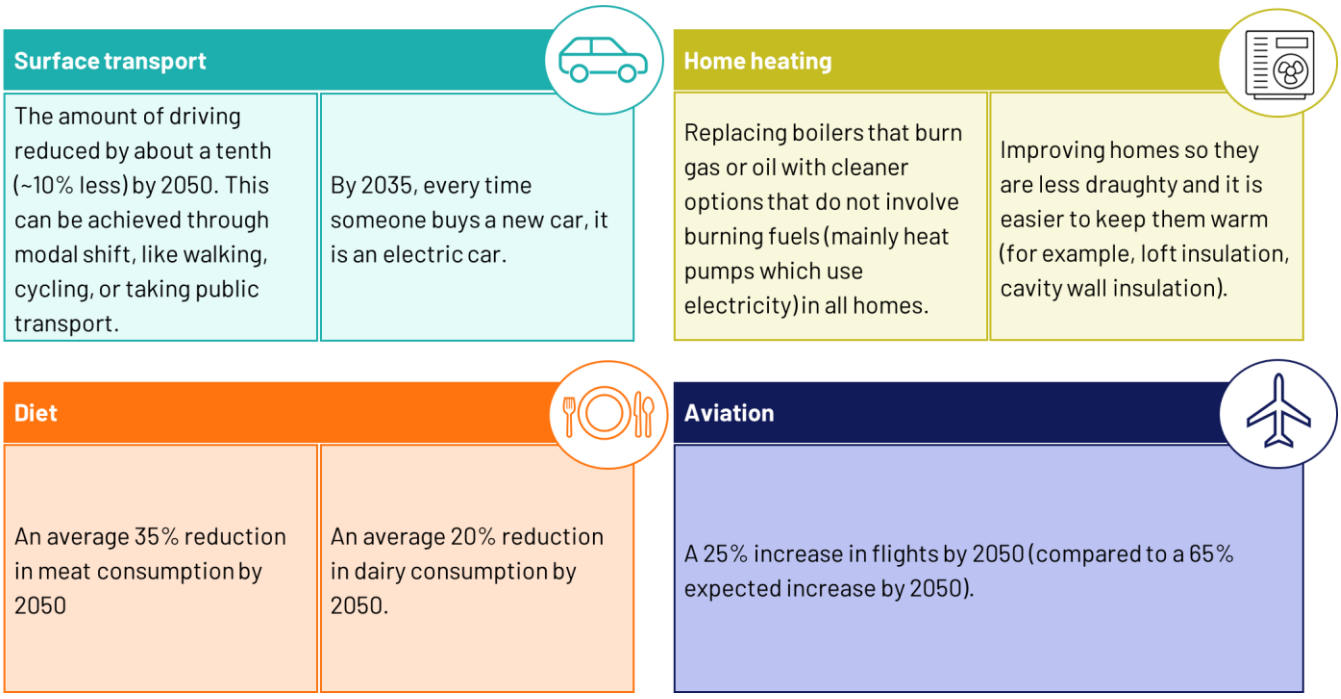
The Climate Change Committee (CCC) commissioned Ipsos in February 2024 to deliver a Citizens' Panel to understand public views on achieving Net Zero. Supported by UKRI's Sciencewise programme,[5] the panel explored what an accessible and affordable vision of Net Zero looks like from a household perspective.

The panel was centred around two questions for participants:

- What does a vision of Net Zero look like that you could get behind?
- What would make it accessible and affordable for your own and other households?

To prepare for its advice to government on the Seventh Carbon Budget, the CCC considered and collected evidence on the role of households in delivering Net Zero and determined the most impactful low-carbon **household choices** in the UK. The panel discussions were focused on the four household choice areas that are most significant for emissions. The household choice itself (e.g. buying an electric car) was not deliberated; the discussions focused on what households would need to see for each household choice to be accessible and affordable for all households.

Household choices, as they were presented to participants



The level of household choices was based on preliminary analysis conducted for the Seventh Carbon Budget, and analysis from the Sixth Carbon Budget where this was not available. Replacing boilers with e.g. heat pumps was presented as taking place when a heating system needed to be replaced anyway.

[5] https://sciencewise.org.uk/

Method

Twenty-seven participants from the West Midlands, reflecting the UK population and diverse attitudes and lifestyles, were recruited to take part in the Citizens' Panel. The General Election called in May 2024 meant that after completing the first two workshops, the remaining four workshops had to be rescheduled. Six of the original participants could no longer participate on these changed dates, so these participants were replaced by five others (six were originally re-recruited but one participant did not attend the workshops). Participants learned about climate change, Net Zero, the four areas of household choices, different policy options, and what their implications may be to household finances and public costs and savings. Discussions focused on policy options which participants thought would help make household choices accessible and affordable.

The panel was comprised of seven workshops, including two face-to-face. The rest were held online, including one (Workshop 3) held after the General Election, which was added in to both onboard new participants (who were recruited to replace those unable to attend rescheduled dates); and to act as a refresher for returning participants.

The CCC's distributional impacts model, which estimates how cost and cost savings of 15 different archetypal UK households would be affected by different policy options to deliver changes to home heating and car use, was used to inform the discussions around surface transport and home heating, and to develop a package of policies, the 'Citizens' Policy Package' which had the broad support of participants.

Cross-cutting themes

The following themes were consistent across deliberations throughout workshops:

- **Support for the household choices**: Some participants expressed concerns around specific policies and technologies early in the process. However, as they learned more about the challenges and had the opportunity to discuss policies and technologies in more depth, they supported the choices as necessary and actively engaged with how these could be delivered.

- **Affordability was a prerequisite for acceptability:** Participants repeatedly said that household choices must be affordable to be acceptable. They were wary of policies that would impose significant financial burdens, particularly on those already struggling with the cost of living. This concern was particularly pronounced for choices involving high upfront costs.

- **The need for financial support with upfront costs**: Participants acknowledged the potential for long-term savings from energy efficient technologies and home improvements but were concerned about the impact of high upfront costs on their short-term budgets. Participants strongly supported grants, particularly for lower-income households, to help them transition to low-carbon heating systems and improve the energy efficiency of their homes. They also suggested interest-free loans and innovative financing mechanisms to spread the cost over time.

- **Support for policies that would make household choices easier**: Participants favoured policies that integrated into their routines more easily and minimised daily life disruptions – for example, reducing the amount of meat in ready meals, or changing restaurant menus to a plant-based first approach. For policies which would less easily integrate into their lives, or were perceived to cause disruptions, participants wanted to have incentives attached – for example, a grant for home insulation upgrades. More generally, participants wanted policies to make

sustainable choices easier and more appealing, supporting initiatives that would reduce the cost, time, or effort required to make low-carbon choices, for example, improving public transport infrastructure to make this option more convenient and cheaper.

- **Strong appetite for proactive action from government**: Throughout workshops, participants were consistent in seeing a large role for government intervention in the transition to Net Zero. This applied to the government providing a large programme of grants (to support the home heating transition), to leading information campaigns, to participants supporting policies that would change their choice environment. While the level of intervention participants wanted to see varied across each sector, across all sectors they saw a key proactive role for government to play in supporting households to play their part in the Net Zero transition.

The following themes developed across deliberations, with views changing as participants learned more about the policy areas and policies. They refined their views over time and nuances to findings are detailed in the following list:

- **Understanding of fairness:** Fairness emerged as a key concern, in particular in relation to protecting vulnerable households. Most participants prioritised minimising negative impacts on households in most instances. For example, participants felt no household should be forced to make unaffordable changes, and that any support offered should consider vulnerability (such as income and renter status). Participants also thought that households' fairness of access was important (for example, grants for most, if not all, households for home heating household choices).

- **The importance of alternatives:** Initially, participants felt that policies to change household behaviours were less acceptable if they made a choice harder (e.g. making a good or service less available to buy, or more expensive). However, after deliberation, participants became more open to these policies, as long as convenient and affordable alternatives to carbon-intensive actions or methods were available. This suggests that providing and clearly communicating about viable alternatives is crucial for policy acceptance.

- **Acceptance of cost increases for 'non-essentials':** While increased costs (particularly upfront costs) for essentials like heating a home were identified as central barriers, cost increases on what were perceived as non-essentials (like a frequent flyer levy) were more readily accepted.

- **The need for shared responsibility:** Participants emphasised shared responsibility for Net Zero, advocating for higher financial contributions from higher-income households and corporate accountability. Specifically, they suggested windfall taxes on energy companies to fund initiatives like heat pump grants, demonstrating a desire for broader financial burden sharing.

- **Information campaigns:** When reflecting on issues relating to climate change and Net Zero as wider issues, participants valued information and guidance, and frequently raised the importance of proactive public engagement.

What participants said about surface transport

Participants were broadly aware of the changes related to surface transport and accepted the need to **reduce car-use and the transition to electric vehicles (EVs).** For many, this shift was something they thought of as already happening. The following outlines participants' views on this shift.

- **Participants were concerned about the sustainability of materials and manufacturing EVs:** In initial conversations, participants sometimes raised questions about the overall sustainability and environmental credentials of EVs, particularly when thinking about the resources needed to manufacture batteries. These questions persisted in later workshops.

- **Participants supported updating infrastructure to facilitate the transition to EVs:** In some cases, participants in early workshops noted that these changes would require wider infrastructure to be updated – particularly around access to charging points (both private and public), and the electricity grid.

- **Participants saw improved public transport infrastructure to facilitate modal shift as vital:** Participants were also concerned about the reliability and reach of the current public transport system, particularly referring to the public transport that was currently available to them. Despite support for investing in public transport, some participants were also sceptical whether doing so would actually encourage households to swap to public transport or active travel for essential car journeys.

When thinking about acceptable policies, participants generally preferred those that made Net Zero options easier or more attractive.

- **Phasing out the sale of new petrol/diesel cars and investing in public transport were accepted by all:** Participants unanimously supported phasing out the sale of new petrol and diesel cars and investing more into public transport and active travel networks. For many, this was an essential prerequisite to encourage the necessary changes to how households travel.

- **Participants were worried about the affordability of upfront costs for EVs, but after deliberation, participants thought that grants for EVs were not necessary:** In early workshops, participants were particularly concerned about the upfront costs of purchasing an EV, and initially thought that EV grants would be needed. However, after deliberation, participants increasingly felt EV grants were not a priority. Instead, they preferred interest-free loans or scrappage schemes, and grants for 'indirect' costs of an EV, such as charging points. Changes in views tended to be due to learning that EVs would likely reach price parity sooner than they thought, information on savings from running costs, and consideration that phase-out dates would only apply to new vehicles, not second-hand ones.

- **General acceptance that early adopters would experience earlier savings:** Participants accepted that those who were early adopters (who tend to be higher-income households) of EVs would benefit from greater savings in the long run. Some felt that this might also help stimulate the second-hand market for EVs, helping bring the price of second-hand EVs down sooner.

- **The use of petrol/diesel cars becoming more expensive was seen as acceptable, but only if accompanied by measures making Net Zero options (i.e. driving an EV or taking public transport) more attractive:** In early workshops, participants were not receptive to policies that made the use of petrol/diesel cars more expensive, especially for unavoidable journeys (e.g. commuting to work). However, following deliberation, participants perceived these policies as acceptable, if they were accompanied by measures that would make Net Zero options more attractive i.e. if the cost of petrol were to increase, it would be acceptable but only if electricity became cheaper, or public transport presented a viable alternative.

- **Participants were also curious about how the shift to EVs would impact the second-hand market:** In the UK, most cars are purchased second-hand. A few participants raised concerns about how the transition to EVs might impact the reliability and potential repair costs for second-hand cars.

What participants said about home heating

Participants were initially unfamiliar with heat pumps as a technology and what the transition to using them may look like. Their predominant concern throughout workshops was the high upfront cost of switching to low-carbon heating. But ultimately, participants felt that if costs were addressed, they overall would support these changes.

- **Participants viewed upfront costs as the main barrier to adopting heat pumps and home insulation, especially for lower-income households.** In later workshops, once participants had been introduced to how heat pumps and insulation may result in lower running costs in the long run, participants still consistently argued that longer-term cost savings (through lower running costs) alone would not be enough to overcome the central barrier of the high upfront costs of purchasing a heat pump and installing home energy efficiency upgrades.

- **Some participants had questions about the practicalities of changes.** This was both in reference to works needing to be done in their homes (to make the building heating system appropriate for a heat pump, or to insulate homes), and in terms of adapting to using a heat pump rather than a boiler. Participants had questions about how noisy they may be, and the availability of space, particularly for those living in flats with no access to an outside space.

- **The rental market was seen as a sticky issue.** Participants regularly had questions about how a switch to heat pumps and home insulation would work for households who don't own their home. They raised doubt that landlords would make these changes or concerns that the upfront costs would be passed on in the form of rent increases.

- **Some were concerned about whether the pipeline of skilled workers was sufficient.** This concern centred around whether there was currently a workforce in the UK that is trained in fitting and maintaining heat pumps.

When considering policies, participants agreed that policies should ensure that a switch to low-carbon heating and home insulation is made affordable.

- **Participants thought that providing information could encourage changes**, for example, through providing case studies or success stories. This perhaps reflected that participants were concerned about households navigating a sector they did not know much about.

- **Phasing out the sale of gas boilers and introducing minimum energy efficiency standards for new and existing homes were unanimously supported**, provided policies are in place which would make it affordable for households to purchase heat pumps and insulate their homes when needed. Participants thought having a clear phase-out date would help manufacturers, government, and households prepare for the change.

- **Participants overwhelmingly agreed that there should be grants available to most, if not all, households to support purchasing heat pumps and paying for energy efficiency upgrades.** The upfront cost of heat pumps and insulation were seen as the main barrier, and participants

saw grants as being the best and fairest way to make these changes more affordable. Participants felt that savings in running costs, while beneficial and a necessary step, would not be enough to overcome the upfront cost barrier.

  - Participants grappled with who should be eligible for grants, ultimately agreeing that grants should be available to all households, but with a tapered approach. This would mean that lower-income households would receive the highest level of grant, while higher-income households still received some support.
  - Participants preferred higher grants to minimise upfront costs, even when this would result in higher taxes to pay for these grants. Participants felt that savings in running costs should pay back any additional upfront cost of a heat pump (remaining after the receipt of a grant) within 3-5 years.

- **Participants were accepting of slightly higher general taxes, and to a lesser extent, increased taxes on gas to pay for home heating grants.** Participants, after deliberation, accepted the trade-off that grants would require increased general taxes. There was less agreement on whether grants should also be funded by increasing the taxes on gas bills, but in general participants were more willing to accept increased taxes if they were used to make heat pumps more affordable.

- **Participants were supportive of making electricity cheaper.** They thought heat pumps having lower running costs than a boiler was an important step to making heat pumps affordable. However, they felt this was insufficient without support on upfront costs. In terms of how to pay for making electricity cheaper, participants grappled with the options of an increase in gas prices or general taxation. There was no consensus, but often a combination of the two was preferred, to ensure households who couldn't yet switch to heat pumps did not face unaffordable gas bills.

- **Participants also thought that energy companies could play a role**, bearing some of the additional costs of paying for grants and/or reducing taxes on electricity. They suggested increasing taxes on energy companies.

What participants said about diet

Participants largely saw an average reduction in meat and dairy consumption as being easier to achieve than some of the other household choices.

- **Participants were surprised by the emissions impact of food production** and expressed a strong desire for more information on the topic. However, some participants felt that dietary changes were less critical for reaching Net Zero and that other household choices (e.g. changes to home heating) should take priority.

- **Participants were willing to make dietary changes to reduce their environmental impact.** Some said they already did not each much meat, for reasons such as preference, cost, and health, and others felt that changing their diet would be a relatively easy change to make. For a few who already ate a largely plant-based diet, they were unsure what further changes they could make.

- **However, participants were sometimes concerned about people who had less flexibility in their diets**, for example individuals with particular medical conditions, children who were

perceived as needing dairy for nutritional reasons, and those whose diet is meat heavy, and would be unwilling to change that.

- **Participants were worried about the impact of this household choice on farmers and households on lower incomes.** They were concerned about farmers' potential loss of income from a reduction in meat and dairy consumption. Some felt that policies to support farmers diversify were an important prerequisite to this household choice. A number of participants also felt that plant-based alternatives to meat and dairy tend to be more expensive and that lower-income households may struggle to afford them.

Policies that would inform the public or make shifting to eating more plant-based alternatives easier, were broadly seen as positives.

- **Participants supported policies that focused on educating and raising awareness.** In particular, participants were keen to see information campaigns focusing on the health co-benefits of changing diets alongside environmental benefits. Suggestions included campaigns similar to five-a-day, or recipe cards providing information on how to cook plant-based meals.

- **Participants broadly reacted positively to policies that increase information on diet, or shift the choice environment,** feeling that such policies still allowed individuals to make the choice of eating meat and dairy should they want to. Policies that were minimally invasive or something that would not necessarily be noticed – for example, replacing a small amount of meat or dairy in pre-prepared meals with alternative proteins, or shifting restaurant menus to plant-based defaults with the option of adding meat – were broadly seen as acceptable.

- **Participants were wary of more novel alternative proteins,** that use new technologies like precision fermentation and cultivated protein. Some participants expressed concerns about the health implications of these products in the future; others simply did not like the idea of these. After deliberations, participants were less against these products, acknowledging the need to support the development of products for more consumer choice, but emphasised that they needed to taste good and be affordable. Participants who did not want to try more novel alternative proteins still supported government funding for their development in order to increase the variety of meat and dairy alternatives.

- **Following deliberations, participants were also open to policies that would adjust relative prices of meat and dairy products and alternative proteins.** Some participants acknowledged that if 'nudge' policies proved insufficient for achieving Net Zero targets, adjusting the relative prices of meat and dairy and alternative products could become necessary. This acceptance was contingent on revenues generated being reinvested to further reduce the cost of plant-based alternatives.

What people said about flying

Participants were broadly supportive of the need to manage how much we fly, so that there is less growth in flying than has been predicted.

- **Participants were surprised at the percentage of total UK emissions from aviation.** Most said they assumed it would be higher, although some thought it would be a lower proportion. They also were surprised that a small percentage of individuals were responsible for the majority of emissions.

- **Participants thought managing future demand for flying was reasonable.** Once it had been explained that the change revolved around managing future demand, participants were broadly accepting. Participants who fly valued international travel for its positive impact on their quality of life but felt that the level of change required seemed reasonable.

When discussing different policies, flying was seen as more of a luxury behaviour than household choices in other sectors, and participants saw targeted price increases as more acceptable.

- **Participants recognised that policies focusing on information would not be enough to change flying behaviour.** However, there was a perception that carbon labels for flights, would be relatively easy to put on airport booking pages and it might encourage behaviour change for some people.

- **Participants widely supported banning airmiles** because they considered it an 'easy win' that would act as encouraging some changes in people's behaviour.

- **Some participants thought improved rail infrastructure could increase public buy-in for restricting or taxing domestic short-haul flights.** They wanted improved railway infrastructure before restricting or taxing short-haul flights, because then there would be a readily available alternative option that more people would consider. They felt that by doing this, there would be more public support for policy changes making air travel more expensive.

- **However, some had questions about whether train travel could really become a viable alternative to flying, with main disagreements around convenience and cost.** Some participants thought the avoidance of airport-related hassles, such as lengthy commutes and extended waiting periods, could compensate for the potentially longer duration of train journeys. This could encourage a significant shift in public preferences towards rail travel. Others doubted that the advantage of shorter air travel could ever be offset by improvements to rail infrastructure. They thought that any significantly longer train journeys would act as a considerable deterrent – for example, the comparative travel time when travelling to Edinburgh by air versus by train.

- **Participants supported taxing private jets and other forms of more carbon-intensive air travel such as first-class flights.** They liked the idea of targeted interventions that addressed perceived inequalities and inefficiencies within the industry. As deliberations progressed, participants recognised that while such measures might not be sufficient to achieve Net Zero, they still felt there was value in addressing concerns around fairness.

- **Participants thought that limiting airport expansion and capacity were acceptable ways to manage flying levels.** They thought it was unfair to expect individuals to change their flying behaviour whilst allowing airline companies to structurally grow their industry's capacity.

- **Participants thought value-added tax (VAT) on plane tickets could be a practical solution but were unsure whether it was justified on flights which generated fewer emissions.** While some participants thought this was a practical solution (as the tax burden would fall solely on those purchasing tickets), others were concerned about proportionality, thinking that it would be fairer for tax to be linked directly to emissions rather than the cost of the flight itself (as the emissions generated by a flight does not always correlate to its price).

- **Participants generally viewed the illustrative ticket price increases shared with them as acceptable, believing that higher costs would deter frequent flying and align with the perception of air travel as a 'luxury' or optional choice.** Participants had a relatively high willingness to accept price-based interventions as a means of managing how much we fly, particularly among those with the financial capacity to absorb the additional costs. Some participants noted that around 50% of households in the UK do not fly abroad at all, so flight price increases would not affect them anyway.

- **By the final workshop, participants favoured a frequent flyer levy, or a combination of a frequent flyer levy with taxes based on the length of flights.** Participants felt that a frequent flyer levy would target those who pollute most, while ensuring that families who fly on holiday once a year would not be impacted and that people can still choose to fly. They argued for a length-based element to this levy as they recognised that not only the frequency of flying, but also the length of flights impacts emissions. Participants were interested in how to measure the overall carbon impact of air travel, considering both the number of flights and the distances flown, not one or the other.

- **Participants supported exemptions to frequent flier levies. Reasons for exemptions included family emergencies or living in remote locations.** They thought it was important not to disproportionately burden people with limited choices around air travel. Participants also recognised that individuals living in isolated areas often faced higher travel costs and limited transportation alternatives, making air travel a necessity rather than a luxury.

- **Participants were less familiar with removals technologies and some expressed concern with their safety and effectiveness.**

- **Participants did not feel that removals policies should be the primary or sole way in which emissions from flying were addressed. They felt it should supplement managing demand, if used at all.** They viewed carbon removal as a 'get out of jail free' card and were concerned that such technologies could undermine efforts to promote sustainable lifestyles and shift societal norms towards lower-carbon choices. They thought removals could play a part in reaching Net Zero but should not be used to replace the other actions and policies required.

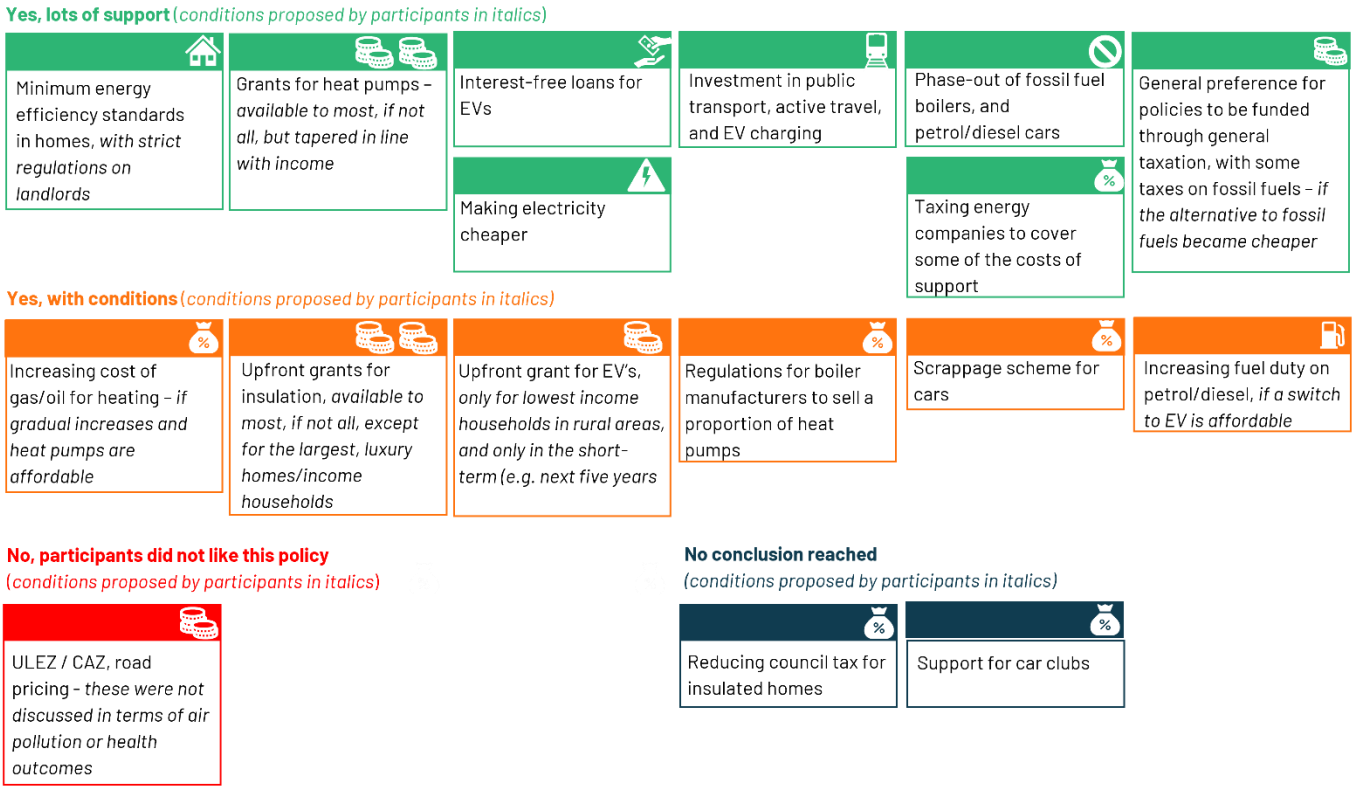
- **Participants preferred the polluter pays principle when discussing who should pay for removals.** There was a general sense that the cost of removals for emissions from flights should be paid for by passengers or airlines, and not by the taxpayer.

- **Participants wanted airlines to contribute to managing their carbon emissions (for example, by investing money towards removals), but wanted government oversight on this.** They also suggested mechanisms for airline regulation to ensure costs were not passed on to the public, such as taxes on profits.

Citizens' Panel Policy Package

Following the workshops, Ipsos researchers and CCC analysed and reviewed the findings on surface transport and home heating to identify a Citizens' Policy Package. This exercise aimed to identify the policies people could get behind to achieve required changes in home heating and car-use.

Citizens' Policy Package



1 Introduction

1.1 Introduction to the contract

In February 2024, the Climate Change Committee (CCC) commissioned Ipsos UK to deliver a Citizens' Panel concerning household choices and Net Zero. The Citizens' Panel was supported by UK Research and Innovation's (UKRI) Sciencewise programme which helps to ensure policy and research is informed by the views and aspirations of the public.[6] The overall aim of the Citizens' Panel was to explore what an accessible and affordable vision of delivering Net Zero looks like from a household perspective. Findings from the Citizens' Panel will inform the CCC's recommendations and advice to the UK Government and Devolved Administrations on the UK's Seventh Carbon Budget, for the period 2038-2042, and its advice to government on policies needed from today until the UK reaches Net Zero.

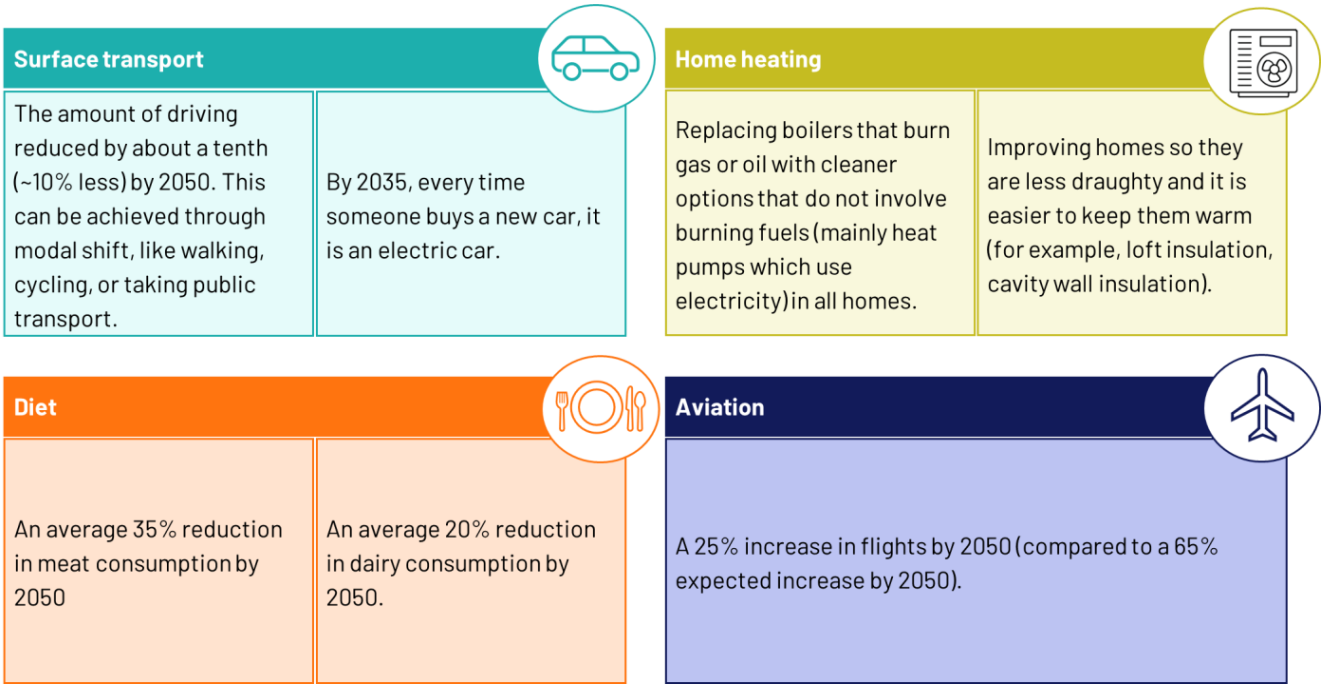
1.1.1 Net Zero and household choices

Net Zero refers to the balance between greenhouse gases (GHGs) produced and removed from the atmosphere, reducing greenhouse gas impact to zero (see glossary). In May 2019, the Climate Change Committee (CCC) advised the UK Government to target Net Zero GHG emissions by 2050, aligning with the 2015 Paris Agreement, and by July 2019, the UK Government amended the 2008 Climate Change Act to commit to this target,[7] and developed a Net Zero Strategy outlining plans to achieve it by 2050.[8] The CCC sets carbon budgets, advising the UK Government on reaching Net Zero. For the Seventh Carbon Budget, the CCC identified changes to the way households heat their homes, travel and eat, termed 'household choices', required to meet the 2050 target.

The most impactful household choices considered by the CCC's assessments span four sectors: surface transport, home heating, diet and aviation, as represented in **Figure 1.1**. The numbers and dates used in Figure 1.1 were based on CCC analysis in preparation of its Seventh Carbon Budget advice. As this was not yet concluded, some were based on figures from the Sixth Carbon Budget or Seventh Carbon Budget analysis that was under development.[9] Therefore, the figures are a snapshot in time used for the purpose of discussion in this Citizens' Panel, rather than the CCC's final advised level of household choices in the Seventh Carbon Budget.

[6] https://sciencewise.org.uk/
[7] https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf
[8] https://www.gov.uk/government/publications/net-zero-strategy
[9] https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

Figure 1.1: The household choices by sectors discussed in the Citizens' Panel



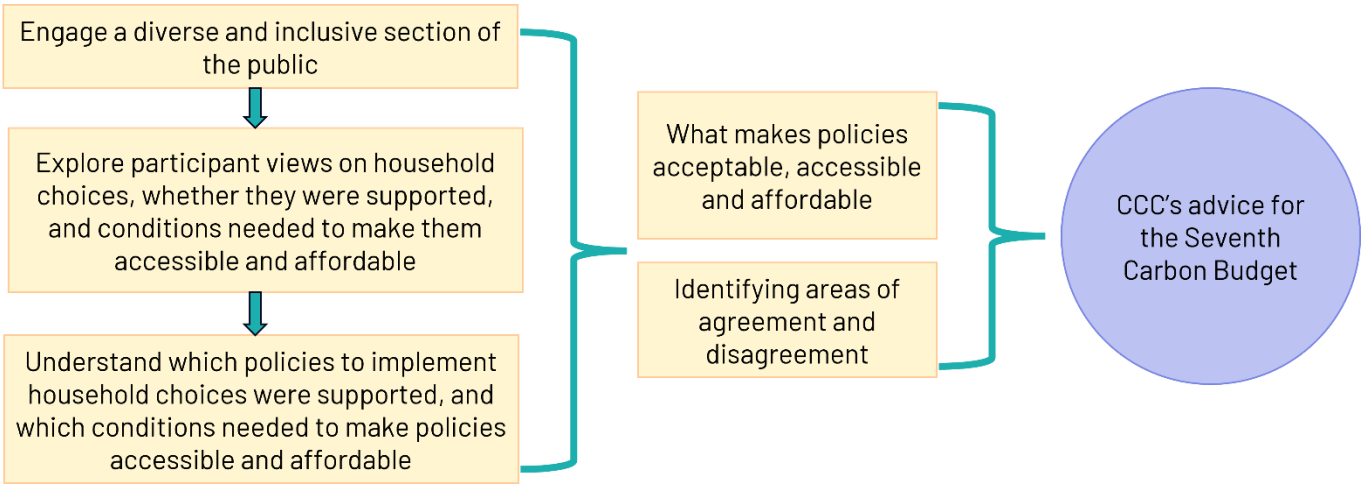
The level of household choices was based on preliminary analysis conducted for the Seventh Carbon Budget, and analysis from the Sixth Carbon Budget where this was not available. Replacing boilers with e.g. heat pumps was presented as taking place when a heating system needed to be replaced anyway.

1.2 Methodology

1.2.1 Aim of the Citizens' Panel

The principal aim of the Citizens' Panel was to understand the public's views on the policies that can make household choices, related to surface transport, home heating, diet and aviation, accessible and affordable. Panel members discussed what makes policies accessible and affordable, both for themselves and for other households, and identified areas of agreement and disagreement. Where past deliberative processes have tended to focus mainly on what policies citizens would like to see in an open-ended way, this panel asked participants to consider nuanced trade-offs that government would face in the context of public spending constraints and decisions around where to target support. This was achieved through the process outlined in **Figure 1.2** (overleaf). Findings from this panel will inform the CCC's advice to government on how policies can support households to make the most impactful household choices.

Figure 1.2: Summary of the aims of the Citizens' Panel



1.2.2 Governance

The governance of this project consisted of Ipsos, the CCC, Sciencewise, Ursus and the Oversight Group, and was essential to the delivery of the Citizens' Panel and meeting the research objectives.

The CCC commissioned Ipsos to deliver the Citizens' Panel. The CCC set out and steered its objectives, and were presented as specialists to participants during the workshops. Sciencewise co-funded the dialogue and provided expertise in undertaking diverse deliberative and other similar processes and in ensuring policy and research is informed by the views and aspirations of the public. Ursus were commissioned as an independent evaluator of the Citizens' Panel. Ursus assessed the project's full process and methodology (e.g. research materials, participant communications) to ensure the highest research quality standards and will publish an independent evaluation of the process.

An Oversight Group of external experts was convened to highlight risks and challenges, acting as a sounding board for potential activities or decisions about the process or content, and to provide advice and an independent voice for the process. It convened a total of four times throughout the project and was composed of diverse stakeholders including representatives from public agencies, academic experts, and public engagement specialists.

1.2.3 Participant selection

A total of 32 participants from Greater Birmingham and surrounding areas were recruited to take part in this Citizens' Panel, that was broadly reflective of UK population demographics (including gender, age, household income level, ethnicity, tenancy, and urban or rural). Participants were recruited to represent a spread across attitudes and characteristics of greatest relevance to the topic, including concerns about climate change, political affiliation, income and household behaviours (e.g. access to a personal vehicle, flying frequency and diet). To recruit participants, we worked with a recruitment company that found individuals, through telephone cold-calls from regional qualitative panels and street recruitment. Recruiters determined eligibility and ensured participants had the specific characteristics relevant to the panel by having them answer a short questionnaire. In this process, we over-recruited under-represented groups (e.g. ethnic minorities) and participants whose characteristics might make engagement with Net Zero policies more challenging (e.g. living in rural areas with limited public transport). The full participant breakdown across all workshops is included in **Table 1.1** below. Participants were renumerated as a thank you for their participation.

Out of the 32 who were recruited, 27 participants attended the initial workshops (Workshop 1 and 2). Due to the rescheduling of sessions, following the General Election (see **Section 1.2.4 Changes following the announcement of the General Election**), six participants were no longer able to attend the remaining workshops. As a result, these participants were replaced by five others (six were originally re-recruited but one participant did not attend the workshops). The balance of characteristics was reviewed to ensure the split of characteristics was still in line with the purposive sampling approach. Following the General Election, there were 26 participants in the final workshops (Workshop 4-7).

Table 1.1: *Breakdown of participant characteristics*

Characteristics	Characteristic breakdown	Pre-election participants (n=27)	Post-election participants (n=26)[10]
Gender	Female	13	14
	Male	14	12
Age	16-24	4	2
	25-44	9	9
	45-64	7	9
	65+	7	6
Urban/rural	Urban/suburban	19	20
	Rural	6	4
	Remote	2	2
Ethnicity	Asian/Asian British	2	3
	Black /Black British	5	4
	Mixed / other	1	1
	White British	19	18
Disability	Long-term physical disability that impacts day-to-day life (of participant or household member)	2	2
Household income level	£0-£10,000	2	1
	£10,001-£25,000	6	6
	£25,001-£50,000	10	13
	£50,001-£75,000	7	6
	£75,001+	2	0
	Homeowner	16	15

[10] Pre-election participants excluded the 6 participants who did not continue the process following the announcement of the General Election and included the 5 additional recruited participants.

Characteristics	Characteristic breakdown	Pre-election participants (n=27)	Post-election participants (n=26)[10]
Tenancy	Privately renting	5	6
	Social renting	3	4
	Other (e.g. live with parents/grandparents)	3	1
Concern about climate change	Very concerned	11	9
	Fairly concerned	9	10
	Not very concerned	7	7
Political party support	Labour	13	14
	Conservative	9	8
	Green	3	2
	Don't know / never voted	2	2
Access to a personal vehicle	Yes – I or someone in my household has access to a personal vehicle	17	16
	No, I do not have access to a personal vehicle, and nor does anyone in my household	7	9
	I sometimes have access to a personal vehicle	3	1
Frequency of flying	Less often/never	8	9
	1-2 per year	16	15
	More than twice per year	3	2
Diet	Vegetarian, vegan or flexitarian	6	7
	Meat-eating	21	19

1.2.4 Changes following the announcement of the General Election

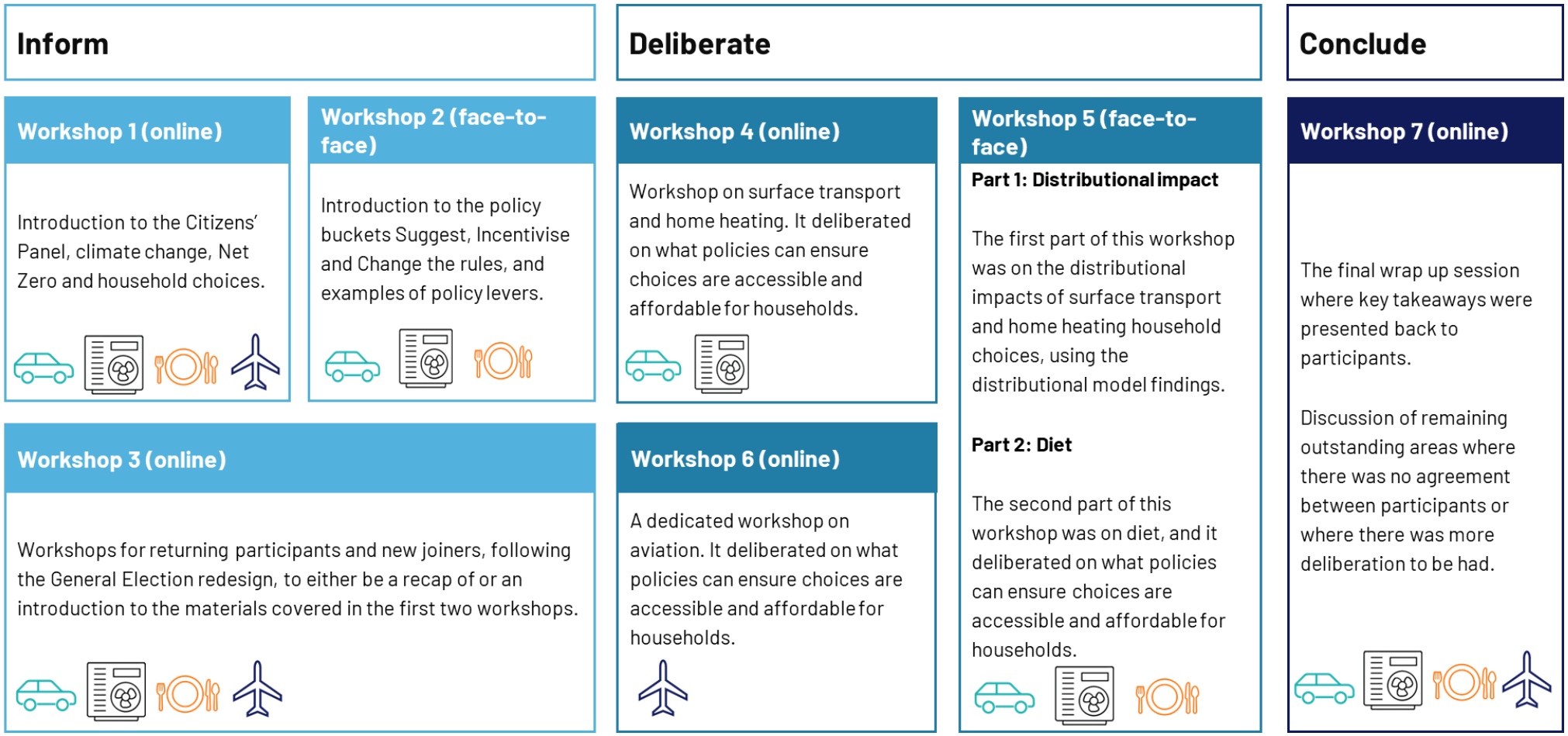
On 22nd May 2024, Rishi Sunak called a general election that was held on 4th July 2024. The first two workshops took place before the General Election was announced. Due to pre-election rules, preventing publicly funded organisations like the CCC from conducting research or public engagement on political issues, Ipsos and CCC made changes to the remaining workshops, with guidance from the Oversight Group. These changes included:

- Postponing the remaining workshops to immediately after the General Election.
- Condensing the remaining workshops into a shorter timeframe of one month. This ensured that the findings from the Citizens' Panel could be incorporated into the CCC's Seventh Carbon Budget Advice.
- Re-recruiting participants due to six participants who could no longer attend the postponed workshops.
- Adding an additional recap workshop for existing participants and an introduction workshop for new joiners.
- Reducing the role of the online community (a platform to engage with topics discussed in-between workshops), by stopping its interactive aspect (see **Section 1.2.5 Structure and flow of workshops** for more detail).

1.2.5 Structure and flow of workshops

The Citizens' Panel was comprised of seven online and face-to-face workshops. **Figure 1.3** overleaf outlines the structure of the panel and the topic of each workshop.

Figure 1.3: Citizens' Panel structure



The sessions were a mix of online and face-to-face workshops, prioritising the latter for the most complex topics and extensive discussions. They took place over the course of 12 weeks, from April to July 2024, with some amendments to accommodate for the General Election pre-election period, as explained in **1.2.4 Changes following the announcement of the General Election** above.

In Workshops 1, 2, and 4-6, participants received presentations from independent specialists to introduce them to the core concepts of this Citizens' Panel and the policy areas and sectors, outlining the existing evidence. Specialists were also available to answer participants' technical questions, with dedicated time set aside for questions and discussions. The specialists involved in the Citizens' Panel are listed in the **Acknowledgements**.

Alongside the workshops, we hosted an online community, in which participants completed online activities to help them engage with the topic. Additional questions and points of confusion during the workshops were also clarified on the online community. The use of the online community changed due to the announcement of the General Election. As a result, data from the online community was not used in the final report.

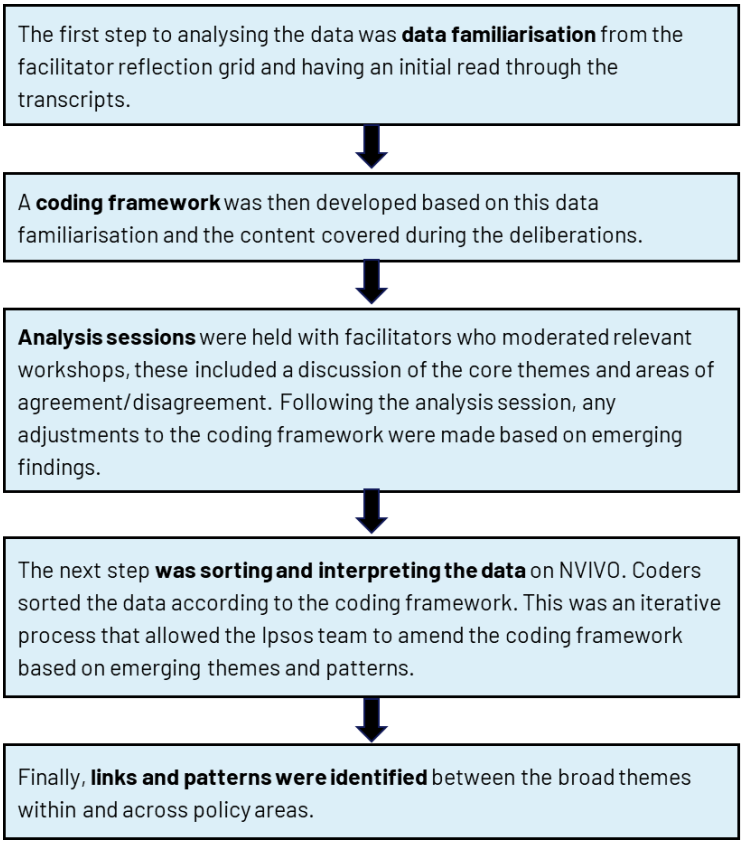
1.2.6 Analysis and interpretation

Every group discussion, both during the online and face-to-face workshops, either had a notetaker to transcribe the sessions or the workshop recordings were transcribed externally.[11] Following each workshop, facilitators completed a reflection grid to help guide data analysis, where they recorded the key points discussed and areas of agreement or disagreement.

The transcripts were coded using NVIVO, a qualitative data analysis computer software package. These codes were thematically analysed. The analysis of the data involved the following steps outlined in **Figure 1.4** (overleaf).

[11] Audios were submitted to VerbitGo (professional transcription services) for transcription.

Figure 1.4: Data analysis approach



For reporting findings, the conventions of qualitative social science reporting were used:

- Typically, we cover findings that were expressed most commonly first.
- Strength of feeling is indicated (even when views were expressed by a minority) as this may also give useful insight into the range of feelings which exist within different groups of people.
- Terms like "most", "many", "some" and "a few" were used to indicate areas of agreement and disagreement between participants.
- This is a report of perceptions rather than facts, where perceptions of participants are being reported.
- Where participants framed their views through personal experience, by providing anecdotal stories, this has been reported.

2 Learning phase

What did the learning phase cover?

- The learning phase consisted of Workshop 1.[12] Participants learned about to the purpose of the Citizens' Panel: what would make the households choices needed to reach Net Zero accessible and affordable for all households.
- The learning phase aimed to build a strong foundation of knowledge on climate change and Net Zero and to provide an overview of the main household choices to inform the deliberations in the next workshops. This means reflections on household choices were initial and not yet informed by detailed information on household choices, low-carbon technologies and policies. Participant views changed throughout the sector specific workshops as they learned more about these topics.
- There were three presentations from specialists, and following each, participants discussed their initial reflections on what they had learnt and asked the specialists questions. Professor Ed Hawkins (National Centre for Atmospheric Science) presented on the science of climate change. Dr Eoin Devane (CCC) presented on the UK's 2050 Net Zero target and what is needed to get there. Dr Sandra Bogelein (CCC) presented on the most impactful household choices from an emissions perspective around home heating, surface transport, diet and aviation (see **Figure 1.1** in **Section 1.1.1 Net Zero and household choices**).
- The context in which the Citizens' Panel took place is important as it could have informed participant views and opinions. The cost-of-living crisis and the general increase in living expenses in recent years was at the forefront of participants minds. In addition, Workshops 1 and 2 took place before the announcement of the General Election and the later workshops immediately after the election and the forming of a new government.

What were participants' initial reflections on climate change and Net Zero?

- At the beginning of the Citizens' Panel, participants showed varying levels of knowledge about climate change and Net Zero but were interested in these topics and eager to learn more about them. Participants felt the younger generation was more knowledgeable about the topics discussed in this workshop.
- Participants shared how they felt about climate change and a common theme across most was feelings of concern.
- Most participants accepted the need to reach Net Zero, however, some were unsure about how realistic the UK's goal to reach Net Zero by 2050 is and some participants asked whether other countries matched this goal.

[12] Participants who joined the Citizens' Panel after the General Election covered the learning phase material in Workshop 3, as explained in **1.2.4 Changes following the announcement of the General Election**

What were participants' initial reflections on household choices?

- Participants initially expressed concerns about household choices when they were introduced in Workshop 1. While this changed significantly over the panel as participants learnt more and deliberated, participants initially expressed the following concerns: household choices would be too expensive for people (across all income levels) and could be too disruptive.
- Participants unanimously agreed that reaching Net Zero should be a shared responsibility between the Government and households, with households requiring financial support. However, participants were initially unsure about how much the Government would be able to support them.
- Participants initially felt the way household choices are framed or introduced is important to make them attractive. To do this, participants suggested highlighting the individual benefits of the household choices.

2.1 Climate change and Net Zero

I. At the beginning of the Citizens' Panel, participants showed varying levels of knowledge about climate change and Net Zero but were interested in these topics and eager to learn more about them.

During recruitment, more than half of participants indicated being fairly concerned or concerned about climate change (see **Table 1.1** in **Section 1.2.3 Participant selection**) which was echoed in discussions during Workshop 1, as described lower down in this section. While participants were concerned about climate change, they showed varying levels of knowledge about it. Participants were aware of climate change as a concept, but often lacked in-depth knowledge about climate change, its impacts and how they personally contributed to it.

> "A lot of people think that climate change is just about the weather. I'm amazed at what is actually included in it. How vast it is. Am I contributing?" – Workshop 1

Participants typically knew little about Net Zero, compared to climate change. While some recognised the terminology, they broadly received it as a new concept.

> "I found both presentations quite interesting. It made me realise how much I didn't know. You see a lot about climate change on the news and social media, but there are a lot of terms I didn't know. I didn't know what Net Zero was and now I do." – Workshop 1

The information presented on climate change and Net Zero was interesting to participants and they reported having learned new information. For example, a key point that captured participants' interest was the increase in temperature in the UK and worldwide over the past 200 years. One participant explained that the stark difference in how quickly the temperature has changed put the impacts of climate change into perspective and made them realise the seriousness of this issue. After the presentations on climate change and Net Zero, participants seemed eager to learn more about these topics.

> "It is a very interesting subject and it's something I know a little bit about but not that much. […] I'm looking forward to the workshop to see what little we can do to change things." – Workshop 1

II. Participants felt different generations had varying levels of knowledge about climate change, with the younger generation being more knowledgeable.

Discussions regarding levels of knowledge about climate change frequently considered differences associated with age or generational cohort. Participants suggested a generational gap exists between younger and older individuals, largely believing the younger generation was more knowledgeable about climate change and its impacts. This view can be summarised for two main reasons: more discussion of climate change in recent years in schools and in wider discourse; and younger participants feeling climate change was more at the forefront of younger generation's minds as its impacts are more likely to directly affect them.

> "I think there is a massive generational gap in the information we've been presented with. I'm 28, we've grown up with climate change. It's been all over the news our entire lifetimes." – Workshop 1

This view that the younger generation is more knowledgeable was not unanimous. A less frequently held perspective suggested the opposite is true and that the older generation is more knowledgeable.

> "I think the adults in the room are pretty much on the message now. Most adults are conscious, I think the next generation of [young participant]'s age, many aren't… It starts with education." – Workshop 1

III. Participants shared how they felt about climate change and a common theme across most was feelings of concern.

Throughout Workshop 1, as participants learned more about climate change, the reality of the situation brought about concern and feelings of overwhelm around the scale and urgency of the challenge. They used terms such as "anxious", "fear", "sobering", "concerning" and "shocked" to describe their reactions to the information presented to them.

> "Climate crisis makes me anxious in general just because once [the earth is] on fire, it's an absolutely enormous problem that is going to have to be solved and we're on such a short timescale, so we don't go over the 1.5 Celsius increase that I don't think it's possible." – Workshop 1

A less prominent view was from participants who were more aware of climate change and engaged with it outside of the workshops. They expressed impatience and frustration with how the climate crisis has been handled.

> "To me it's like they [government] have been banging on about this for decades. For 50 years we've known this is what's happening […] I feel really angry with the current government[13] because I just see the politics of the way they're rowing back on this." – Workshop 1

IV. Most participants accepted the need to reach Net Zero, however, some were unsure about how realistic the UK's goal to reach Net Zero by 2050 is and some participants asked whether other countries matched this goal.

[13] This quote is from Workshop 1 before the General Election was announced. Therefore, the participant was referring to the previous government.

Most participants accepted the need to reach Net Zero, and were keen to hear about the actions the Government is already taking and planning to take in the future to reach this target. Some participants were surprised to learn that the UK was already halfway to reaching Net Zero, which provided them some relief to the size of the challenge.

> "I think it's something I didn't realise there had been so much progress made. I know it's been talked about, I wasn't aware of that, it's quite significant." – Workshop 3

Some participants were unsure whether the goal of reaching Net Zero by 2050 is realistic and asked questions about whether this target was too ambitious to be achieved within the timeline.

In addition, participants wanted to know whether the UK's commitments to reach Net Zero are matched by other countries internationally. They were concerned that any efforts undertaken in the UK, including household choices, would not have a positive impact if the rest of the world did not have the same goals. Some participants explained that household choices would only be acceptable if other countries were also committed to similar goals.

> "It's not the UK by ourselves in this whole thing. Even if the UK do their absolute best, we're not in this by ourselves, it's a world thing, and there are countries with a lot more people than us. Are our efforts going to contribute that much?" – Workshop 1

In two question-and-answer sessions in Workshop 1, specialists responded to participant questions on the Net Zero timeline and international efforts. They provided more information on the 2050 Net Zero goal, the role of international agreements, the pace of decarbonisation in the UK and other countries and the role of the UK as a climate leader.

2.2 Initial views on household choices

I. Participants initially expressed concerns about household choices when they were introduced in Workshop 1. This changed significantly over the panel once they learnt about the detail of the choices and the potential policies.

Participants' initial eagerness to learn more about climate change and how to support reaching Net Zero was somewhat contrasted with their initial reactions to the household choices, which were initially received less positively by participants. These initial reactions emerged before the detailed explanations of household choices and policies that could support these choices in the sector specific workshops.

Some participants were initially resistant to these choices on the basis that they would impact people's lives and behaviours. Some were wary of the constraints these choices may have and whether they would disturb everyday life. They explained they would like the choices to be fully optional. Participants especially raised this in surface transport discussions. For example, participants had concerns around range and reliability of EVs and whether there were sufficient EV charge points to ensure the switch to an EV would not be disruptive.

Some participants also wondered how much households could make a difference in the UK's goal of reaching Net Zero by 2050, as highlighted in the quote below. After specialists' presentations on household choices, participants understood the importance of these choices and why they were required to reach Net Zero. Similarly, in later workshops, the deliberative process and focus on specific sectors led to participants being more on board and accepting of the household choices discussed. Overall, this was the case because receiving detailed information about the choices increased participant understanding of what the choices involved and what policy support for these choices could be available.

In addition, it improved their confidence in the choices' benefits for themselves and others. The evolution of participants' attitudes towards household choices is explored in more detail in **Chapter 7 Cross-cutting findings**.

> "I'd question how much the households can make a difference. We don't control where our energy comes from. I appreciate the sentiment, and we've definitely got to do something about it, but it's something we really lack control over." – Workshop 1

II. Participants raised the affordability of household choices as a key condition for their acceptability from the start of the workshops.

At this stage of the Citizens' Panel, the costs and savings of the household choices had not yet been introduced to participants. After the presentation on household choices, a common initial reaction was for participants to ask how much these choices would cost and whether they would be a financial burden on households.

> "A lot of the population is probably subconsciously thinking about cost […] It's the overriding factor." – Workshop 2

This Citizens' Panel occurred in the context of the cost-of-living crisis and the general increase in living expenses in recent years. Participants organically brought up the cost-of-living crisis repeatedly during discussions. They emphasised that people are already struggling and were therefore concerned about any additional financial strain household choices may bring.

> "The cost-of-living is high and people have mortgages, kids, etc., so how is someone supposed to afford replacing their boiler or getting an electric car? I've already noticed petrol and diesel prices are going back up again." – Workshop 1

Participants were clear that if these choices were not affordable, they would not be attractive or acceptable to people. This view remained consistent throughout the later workshops.

> "If I'm pushed [into doing the household choices] and can't afford something it's not acceptable for me to be put under pressure." – Workshop 3

In addition, participants were concerned about the financial impact of household choices, and frequently wanted to know how these may impact households across all income levels.

III. Participants unanimously agreed that reaching Net Zero should be a shared responsibility between the Government and households, with households requiring financial support.

An overarching theme was that reaching Net Zero should be a shared responsibility and joint effort with the Government and it should not be borne by households alone. Participants expressed that the Government should both provide financial support to households and set an example of the low-emission technologies they want people to adopt.

> "Why are they [the Government] not building every new build house with solar panels? Why haven't they all got heat pumps? Why haven't they got electric charging points? Are they fitted with extra insulation? No, they're not." – Workshop 1

Participants were overall willing to make changes to adopt the household choices but explained that it was essential for the Government to support them and meet them halfway in their efforts, which most did

not believe was currently the case. Participants agreed it would not be financially viable for lower- and middle-income households to adopt these low-emission technologies without financial support.

IV. Participants were initially unsure how much the Government would support households or whether it would have the funds available to provide financial support to households.

At this stage of the Citizens' Panel, the existing policies and wider policy options, had not yet been introduced to participants.

Some participants expressed limited faith in the Government,[14] and felt others would share this view. While this view was not unanimous, there was a sentiment that the Government, at the time of Workshops 1 and 2, was not considering the public's current struggles enough, and implementing household choices without support, would reinforce this belief.

There were doubts that the Government would support people in this transition to household choices. A participant used the example of the Feed-in-Tariffs scheme[15] to illustrate this point. The financial incentive the scheme provided allowed them to install and benefit from solar panels. They explained that by ending such schemes the Government was disincentivising other people from making low-carbon choices. This sentiment was echoed by other participants.

More broadly, a few participants understood that the Government is limited by the amount of money it has in general and, as a result, how much it can support households with the transition to low-carbon household choices. Government finances and tax trade-offs of household choices were discussed in detail in the sector specific workshops.

V. Participants said that the way household choices are framed or introduced to the public is important to make them attractive.

Participants considered the framing of household choices key to making them attractive. From the way household choices were first presented to participants, some thought that these choices came across as forceful. Participants suggested that one way of making these choices more attractive is by showing the individual benefits that people can gain through these.

> "I think it'd be interesting to see for each one the benefits to the lifestyle as a result of going for a green approach. For example, if we improve buildings and insulation, the cost of your energy usage should hopefully decrease. If you're driving less and cycling more, you've got improved health benefits." – Workshop 1

Other participants suggested framing household choices as contributions to the planet's "greater good" could make them more attractive. However, some felt this narrative lacked sufficient incentive for the high-effort household choices.

[14] This point was raised in Workshops 1 and 2 before the General Election was announced. Therefore, the participants were referring to the previous government.
[15] The Feed-in-Tariffs scheme promoted the uptake of renewable and low-carbon electricity generation, by incentivising renewable energy generation and guaranteeing a fixed price for the energy fed back into the grid.

A less popular view, that contradicts the suggestions above, proposed framing household choices as requirements by taking away individual choices in some circumstances. A few participants argued that people will be more likely to adopt the household choices if accountability was increased:

> "It's all well and good changing something if there's no consequence to the changes. Some will do it, and some won't so it needs to be more doable and interesting to people, so people want to do these changes knowing someone is going to monitor what we do." – Workshop 1

3 Policy principles phase

What did the policy principles phase cover?

- The policy principles phase consisted of Workshop 2,[16] where participants learned about the policy levers available to the Government to support household choices and discussed trade-offs (e.g. costs to government or households) of different levers. It was intended to kickstart their thinking on accessible and affordable policy levers ahead of the sector specific workshops. This means that reflections on policy levers were initial and not yet informed by detailed information on the household choices.

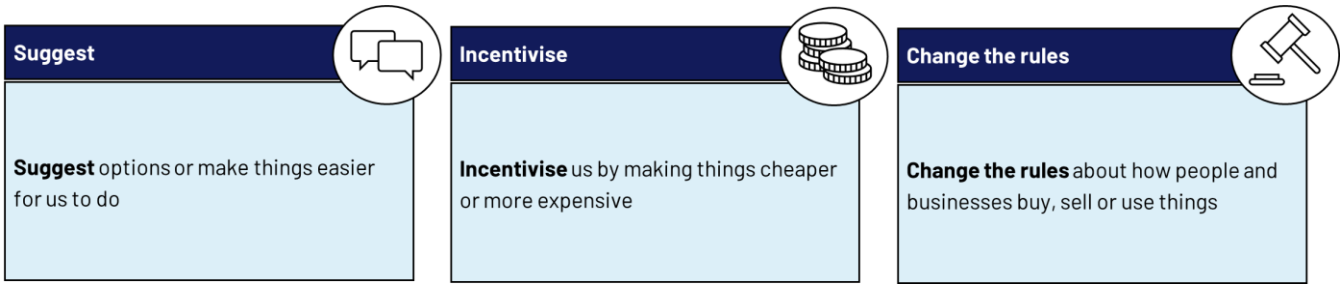
- Participants were introduced to the following three **Policy buckets** as illustrated in **Figure 3.1**:

    - **'Suggest'** policies include providing information on choices, labelling products and improving alternatives (e.g. through infrastructure improvements).
    - **'Incentivise'** policies change the cost of goods and services (e.g. by providing grants or reducing or increasing taxes).
    - **'Change the Rules'** policies include phasing out high-emission products or practices, rules for business about what they sell and how they operate and rules for people on their purchases and behaviours.

- There were four presentations from specialists, followed by participants' initial reflections on what they had learnt and an opportunity to ask specialists questions. Professor Rebecca Wilis (Lancaster University) explained how different policy choices currently shape household choices (in the Net Zero space and beyond). Dr Sandra Bogelein (CCC) introduced the concept of the 'Policy Buckets'. Toby Park (BIT) and Peter Levell (IFS) spoke through each 'Policy Bucket' in more detail.

- To facilitate discussion in this workshop, policy buckets were introduced in the context of the surface transport, home heating and diet sectors.

Figure 3.1: 'Policy buckets' suggested to participants



[16] Participants who joined the Citizens' Panel after the General Election covered the policy principles phase material in Workshop 3, as explained in **1.2.4 Changes following the announcement of the General Election**

What did participants say about Policy buckets?

- The 'Suggest' policy bucket was well received by participants in Workshop 2, especially policies that educate and provide more information on household choices and make the benefits of choices clear to people.
- Participants recognised that 'Suggest' policies alone may not be sufficient in making people adopt the household choices. As a result, they supported the combination of 'Suggest' policies with 'Incentivise' and 'Change the Rules' policies.
- 'Incentivise' policies that make things cheaper for households were largely preferred to policies that make high emission options more expensive.
- Participants were aware that ultimately costs were likely to come back to the consumer, but were keen to explore ways of making costs fall in the fairest way, and for companies to cover some costs where possible.
- Participants had differing views of whether impacts of increases in general taxation on higher-income households were acceptable.
- 'Change the Rules' policies were more acceptable to some participants if the rules applied to businesses rather than individuals or if the rules were introduced to households and businesses gradually.

3.1 Initial views on 'Suggest'

I. The 'Suggest' policy bucket was well received by participants in Workshop 2, especially policies that educate and provide more information on household choices.

Despite specialist presentations explaining that information campaigns were not the most effective way to change behaviours, participants still gravitated towards them in group discussions, especially when discussing diet. Participants explained that household choices are new concepts to most people and therefore they might be nervous to incorporate these choices in their lives. Equipping people with knowledge and instilling confidence in these choices through information provision was therefore considered key.

> "I think that the best thing to do is to inform and to really make sure that information gets across about how small household choices can make a big difference." – Workshop 2

It was noted that information campaigns should reach all generations through targeted platforms. For the younger generation this meant using social media and for the older generation delivering campaigns on TV or the radio. Participants also highlighted that the information shared about the household choices to the public should come from a respected and trusted source.

II. Participants felt that information campaigns that highlighted additional benefits of household choices would be most effective.

Participants thought that highlighting personal benefits would incentivise people to adopt household choices. These benefits included health benefits, rooted both in discussions on encouraging cycling and incentivising switching to plant-based alternatives (see **Chapter 4 Surface transport, home heating**

and Citizens' Policy Package and **Chapter 5 Diet**, respectively). In addition, participants felt it would be important to share information about the financial benefits, or saving money in the long-term, of these household choices.

> "If there is an ongoing cost benefit, people want to see how much they pay upfront and how much they save. It will be a key driver for people." – Workshop 3

III. Participants recognised that 'Suggest' policies alone may not be sufficient in making people adopt the household choices but would work well with elements of 'Incentivise' and 'Change the Rules' policies.

Overall, while 'Suggest' policies were favoured by participants, there was some acknowledgement that these alone would not necessarily influence people's behaviours, and motivations were also key. In these instances, participants liked the idea of combining policy buckets and policy levers. They explained that 'Suggest' policies were a good starting point to initially introduce household choices to people and 'Incentivise' and 'Change the Rules' policies can be implemented as a second step.

> "I think inform is a good base to everything. It's an under layer and then build on top of it. That's a good place to start." – Workshop 2

3.2 Initial views on 'Incentivise'

I. At this early stage in the panel, policies that make things cheaper for households were largely preferred to policies that make high-emission options more expensive.

'Making things cheaper', through grants, loans or reducing the cost of products, was preferred by participants, and was non-negotiable for one-off large purchases. This corroborates with participant concerns on cost and affordability as explained in **Section 2.2. Initial views on household choices**.

'Making polluting options more expensive', through taxes or increasing cost of products, was largely not liked by participants at this stage in the process. Participants felt this was especially the case when 'making polluting options more expensive' would be done in isolation and the alternative low-emission option remained the same price. This was mainly discussed in the context of the cost of meat or dairy products. Increased prices were seen as more acceptable if the revenue raised would be used to lower the price of the low-emission alternative. Over the course of the panel, participants became more accepting of increasing the cost of high-emission options, especially for non-essential behaviours (see later chapters for details on policies participants supported by the end of the deliberation).

II. Participants were aware that ultimately costs were likely to come back to the consumer, but were keen to explore ways of making costs fall in the fairest way and for companies to cover some costs where possible.

Participants did not like that 'making things cheaper' (e.g. by providing grants or reducing tax) would most likely results in the cost of the subsidy or grant falling back on the consumer (e.g. via taxes such as income tax or increased product cost from taxing companies), but they were aware that it would be a consequence of these policies. Groups discussed the best approaches to fund these policies. For example, there was a suggestion to offer government loans (instead of grants) that could be paid back proportional to people's income, similar to loans for student finance.

> "The system for student finance, where if you earn over a certain threshold, it could be applied in a different set of circumstances […] It would have to be 'having the heat pump and you have to pay for it'. […] If it's so negligible that it won't impact people. Like £4 a month." – Workshop 2

Another suggestion for funding these incentives was to create a separate saving account dedicated to 'green investments'. There were some concerns that saving for one-off large purchases for Net Zero would make low-income households ineligible for Universal Credit, and it was important to participants that any savings made towards household choices should not affect their eligibility. Participants thought that protecting Universal Credit would incentivise lower-income households to save for 'green investments'.

> "With our jobs you can opt into a pensions scheme at work. Maybe you could opt into a green scheme where some of your wages per month you put into an account to change your boiler or your car. It would be an opt in." – Workshop 2

There were also some discussions about businesses needing to be responsible to cover the cost of 'making things cheaper' instead of households (see **Chapter 4 Surface transport, home heating and Citizens' Policy Package** and **Chapter 6 Aviation** for more detailed insights on this). For example, participants suggested increasing taxes on businesses as a way of funding government financial support for households.

III. Participants had differing views of whether impacts of increases in general taxation on higher-income households were acceptable.

Participants had some concerns that middle- or high-income households would be disproportionally affected if the Government increased income taxes to fund grants or if higher-income households would not be eligible to receive grants. Some participants thought that people should not be penalised for being in a higher-income tax bracket, while others were undecided.

> "I'm quite split on it. If you have a good job and you work hard, you deserve it. You shouldn't be penalised. Some people aren't in that position, and it isn't their fault." – Workshop 2

This financial impact on different households is also further discussed in **Chapter 4 Surface transport, home heating and Citizens' Policy Package** where one-off large purchases are considered.

3.3 Initial views on 'Change the Rules'

I. 'Change the Rules' policies were acceptable to some participants if the rules applied to businesses rather than individuals or if the rules were introduced to households and businesses gradually.

Participants in Workshops 1 and 2 commonly expressed a dislike for 'forcing' household choices onto people. They also shared this sentiment when first introduced to the 'Change the Rules' policy bucket, as one participant described the threat of entering a "nanny state". Instead, participants initially tended to prefer a gentler approach where people are encouraged to change rather than obliged. This view changed following deliberation – when discussing the specific options relating to sectors in more depth, participants were unanimously supportive of regulations to phase-out the purchase of new gas boilers and petrol/diesel cars.

> "We don't want Change the rules. It's like a nanny state telling us what we should be doing." – Workshop 2

"I think encourage more than change. Encourage people to change." – Workshop 2

However, in initial discussions participants were in favour of applying 'Change the Rules' policies to businesses or organisations.

Participants also discussed conditions they thought would make 'Change the Rules' policies more acceptable to households and businesses, which are summarised as follows:

- Provide enough time for people and businesses to adapt to the household choices.
- Set a clear plan to replace old technology that is being phased out (gas boiler and petrol/diesel cars)
- Providing financial support to households by combining 'Change the Rules' policies with 'Incentivise' policies because household choices would still be unaffordable to most. For example, when discussing the phase-out of gas boilers by 2035, some participants showed concerns about having a functioning boiler past that cut-off date and no longer being eligible for grants. They accepted the phase-out of gas boiler by 2035 if there was a guarantee that grants would be available as long as people need them.

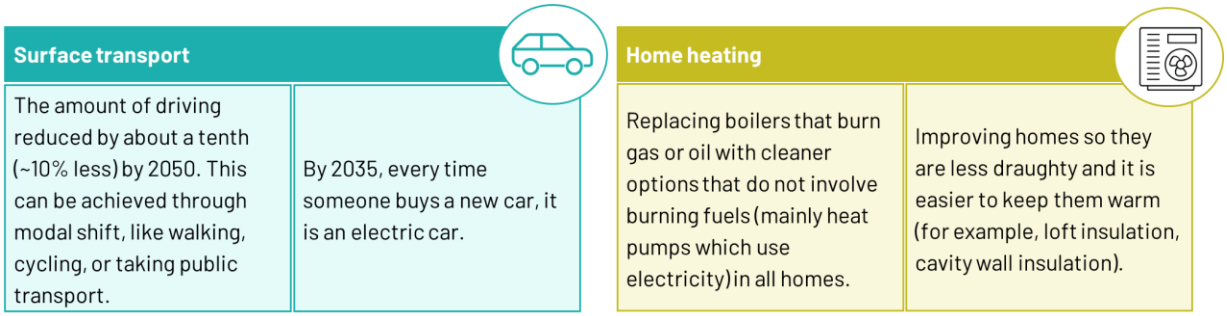
4 Surface transport, home heating and Citizens' Policy Package

What did Workshops 4, 5 and 7 cover?

- Workshops 4 and 5 were the first substantive deliberation focused workshops. The focus was on exploring participants' views on what would make the choices households need to make for surface transport and home heating accessible and affordable for all households.

- In Workshop 4 specialists on buildings (Esther Harris – CCC) and surface transport (Colin Walker – Energy & Climate Intelligence Unit (ECIU), Rachel Carr-Whitworth – CCC) presented in detail on the main changes households will need to make, and participants were able to share views and ask questions about heat pumps and electric cars. The range of policy options to support these household choices was also presented to participants. Participants shared views and suggested other ideas.

Figure 4.1: Household choices to meet Net Zero for surface transport and home heating



The level of household choices was based on preliminary analysis conducted for the Seventh Carbon Budget, and analysis from the Sixth Carbon Budget where this was not available. Replacing boilers with e.g. heat pumps was presented as taking place when a heating system needed to be replaced anyway.

- In Workshop 5, Bea Natzler (CCC) presented two policy packages (groups of policies) to illustrate how government could support households in making choices for surface transport and home heating. Participants were invited to share initial reflections on the two policy packages. They were then taken through the CCC's modelling on how these policy packages impact costs and savings of different example households from now until 2050. Participants discussed a series of 'key questions' to help them assess which policies they felt were the most acceptable and affordable, given the financial impacts on different households. This culminated in a draft 'Citizens' Policy Package'.
- In Workshop 7, the 'Citizens' Policy Package' was discussed further, and participants discussed a series of follow-up questions to pin down outstanding questions about the package, culminating in the final 'Citizens' Policy Package'.

What did participants say about switching to an EV and replacing some car journeys with public transport, or active travel?

- Participants were familiar with and accepting of the need for households to switch to EVs. For many, this switch was already happening in society, and participants were comfortable discussing it.
- In initial conversations, they raised questions about the overall sustainability and environmental credentials of EVs, particularly in terms of resources needed to manufacture batteries. These questions were persistent throughout the workshops.
- Participants also raised questions about the supporting infrastructure to facilitate and support households to make this transition. Participants highlighted that there needed to be sufficient access to public and at-home charging points, and that the capacity of the electricity grid needed to be large enough to support these changes.
- Participants were also concerned about the availability and reliability of public transport infrastructure and whether it could replace some car journeys – for example, commuting to work. This concern was particularly prominent amongst participants who lived in rural areas. A few participants also raised cost of public transport for families versus driving as a concern.
- Participants had early concerns about the upfront cost of EVs (in comparison to equivalent petrol and diesel cars), and about 'indirect' costs – such as insurance and installing home chargers. Participants' views changed in later workshops, but in initial conversations they regularly noted concerns that EVs were currently unaffordable to most households.
- Some participants were concerned about facing costs both for home heating and electric cars in a similar timeframe.

What did participants say about <u>policies to support</u> switching to an EV and replacing some car journeys with public transport, or active travel?

- Participants unanimously supported phasing out the sale of new petrol and diesel cars.
- Participants generally agreed that improving public transport and active travel networks was acceptable and necessary, emphasising that this needed to happen for modal shifts to be feasible for many households. This reflected participants' view that current public and active travel infrastructure was insufficient for many households to shift their driving behaviours. Participants also often felt that public transport would need to become cheaper and more convenient in order to incentivise households to use it more.
- However, even with these improvements, participants sometimes felt that not all car journeys can be replaced, both by public transport or active travel. They emphasised that it was likely that many households would still need to drive – underscoring the importance of EVs as a lower-carbon means of driving.

- Most participants were concerned about policies (such as Vehicle Excise Duty (VED), increasing fuel duty,[17] Ultra Low Emissions Zones (ULEZ)) that would increase costs for those driving petrol/diesel cars, particularly if driving a petrol/diesel car for some people was unavoidable. Some thought these might be acceptable, if EVs cost the same as petrol/diesel cars.

- Participants initially felt they would support EV grants, but over time increasingly felt this was not a priority. Participants tended to change their views when they learnt that price parity between EVs and petrol/diesel vehicles would be achieved sooner than participants initially thought, that EVs are much cheaper to run and that phase-out dates only apply to new vehicles. They also suggested interest-free loans could be used to help with upfront costs for low-income households, if needed.

- Despite eventual agreement that EV grants were not required, some participants advocated for grants to cover 'indirect' EV costs, such as home charge points, or advocated interest-free loans for EVs or scrappage schemes for petrol and diesel cars.

- Following deliberation, participants agreed that increasing the price of petrol and diesel to help pay for support like grants for indirect costs was acceptable, but remained concerned about how this may impact those unable to make changes earlier (such as those on low-incomes, or who need to drive). Participants therefore had the condition that the cost of petrol/diesel should be increased incrementally, with increases in line with improvements to public transport infrastructure and concurrent decreases in the cost of electricity.

- Participants were generally accepting that those who could afford to buy EVs earlier would benefit from greater savings on running costs in the long run. Some felt those purchasing EVs earlier would help stimulate the second-hand market for EVs.

- Participants had questions about the second-hand market throughout the workshops. They wanted to know whether support offered for new EVs would also be available for second-hand cars, and wanted to know about the lifetime of batteries and warranties and when affordable EVs would reach the second-hand market. Ultimately, participants emphasised that policies needed to work for the second-hand market as well as for new cars, but were not clear on what specific policies would be useful, beyond extended battery warranties.

What did participants say about switching to a heat pump and insulating homes?

- Participants were initially unfamiliar with heat pumps as a low-carbon technology, which could sometimes lead to some being worried about the scale of change to their homes.

- When first learning about home heating household choices, participants had questions about the cost of these changes, in particular upfront costs, and how people living in different

[17] Vehicle Excise Duty (VED) is a tax levied on every car using public roads, administered by the Driver and Vehicle Licensing Authority (DVLA). The amount of VED due varies – for most cars registered before April 2017, the amount due depended primarily on a car's CO_2 emissions; since April 2017, the first year of payments depend on CO_2 emissions, but subsequent payments are not. If a car is less fuel efficient, they will pay more. EVs are currently exempt from paying VED, but government plans (as of November 2024) for EV drivers who registered their vehicles on or after 1st April 2017 will need to pay VED from 2025.
Fuel Duties are taxes levied on purchases of petrol, diesel, and other fuel. It is levied per unit of fuel purchased, and is included in the cost of petrol and diesel. VAT is applied after fuel duty.

tenancies may be able to access them. Home heating was seen as essential for households, meaning that participants were concerned for lower-income households or those less able to afford the necessary changes.

- Participants had heard negative anecdotes about what it was like to have a heat pump – they raised concerns about noise and space availability.

- Some participants were also concerned about whether there were enough people in the current UK workforce who could install and maintain heat pumps across the UK.

What did participants say about <u>policies to support</u> switching to a heat pump and insulating homes?

- Participants saw information provision as being important to encourage changes to how people heat their homes. They wanted access to case studies or further information on what changes may be needed, and how these can best be achieved so they could feel more confident about required changes.

- Phasing out gas boilers and introducing minimum energy efficiency standards for new and private rented homes was seen as acceptable.

- Participants were unanimous that there should be some level of grant support for upfront costs of heat pumps and insulation for most, if not all households. The upfront cost of heat pumps was a consistent concern for participants. They were particularly concerned about low-income households being unable to afford to make the shift, and about those with different tenancies (particularly households who rent) potentially having the costs of the home upgrade passed on via increased rent.

- Participants grappled with who should be eligible for a grant, and after deliberation, agreed that grants should be available to households of all income levels, but tapered based on income or need. A tapered grant was seen as a fairer way to distribute resources and would not cost the taxpayer as much as offering a universal level of grant support.

- Participants were initially undecided on how grants should be paid for but tended to prefer general taxation over funding measures through higher gas bills. They were comfortable that more universal access to grants would put a greater demand on taxes, seeing this as an acceptable trade-off as households contribute to taxation based on ability to pay.

- Participants thought grants should offset the additional cost of a heat pump and the cost of home insulation as far as possible, with a payback period of 3-5 years. They prioritised affording upfront costs, seeing savings on running costs as not always being enough to facilitate household choices.

- Participants also discussed non-financial barriers, like disruption caused by installing heat pumps and home efficiency works, and trust in the technology and installation.

- Participants thought making electricity cheaper was an important and necessary step, though insufficient without financial support for upfront costs of a heat pump.

- There were different views on how making electricity cheaper would be funded, but generally there was a preference for it largely being funded through general taxation with a small increase on gas bills, that was gradual and took place once heat pumps were affordable. Participants also thought energy companies should bear some of the additional costs.

- Participants were also concerned about whether it was fair for the cost of gas to increase, feeling this may lead to negative impacts for those less able to make home heating household choices earlier – either due to income, or because they lived in rented accommodation and were reliant on when landlords made changes.

What policy package for surface transport and home heating did participants land on?

In Workshop 5, following deliberations, the CCC and Ipsos facilitators compiled a draft Citizens' Policy Package (based on panel discussions) and tested this with participants.

- Participants' most important criteria in choosing this package was its inclusion of grants to almost every household. Participants had already identified that most thought this should be universal but tapered for heat pumps and home insulation.

- They also suggested adding to the package interest-free loans for EVs, not grants, and that energy companies should be taxed more to help pay for support measures.

- Participants also thought it was important that electricity was made cheaper, and there were minimum standards for energy efficiency for new and private rented homes – with the added condition that the package protected renters from landlords increasing their rent.

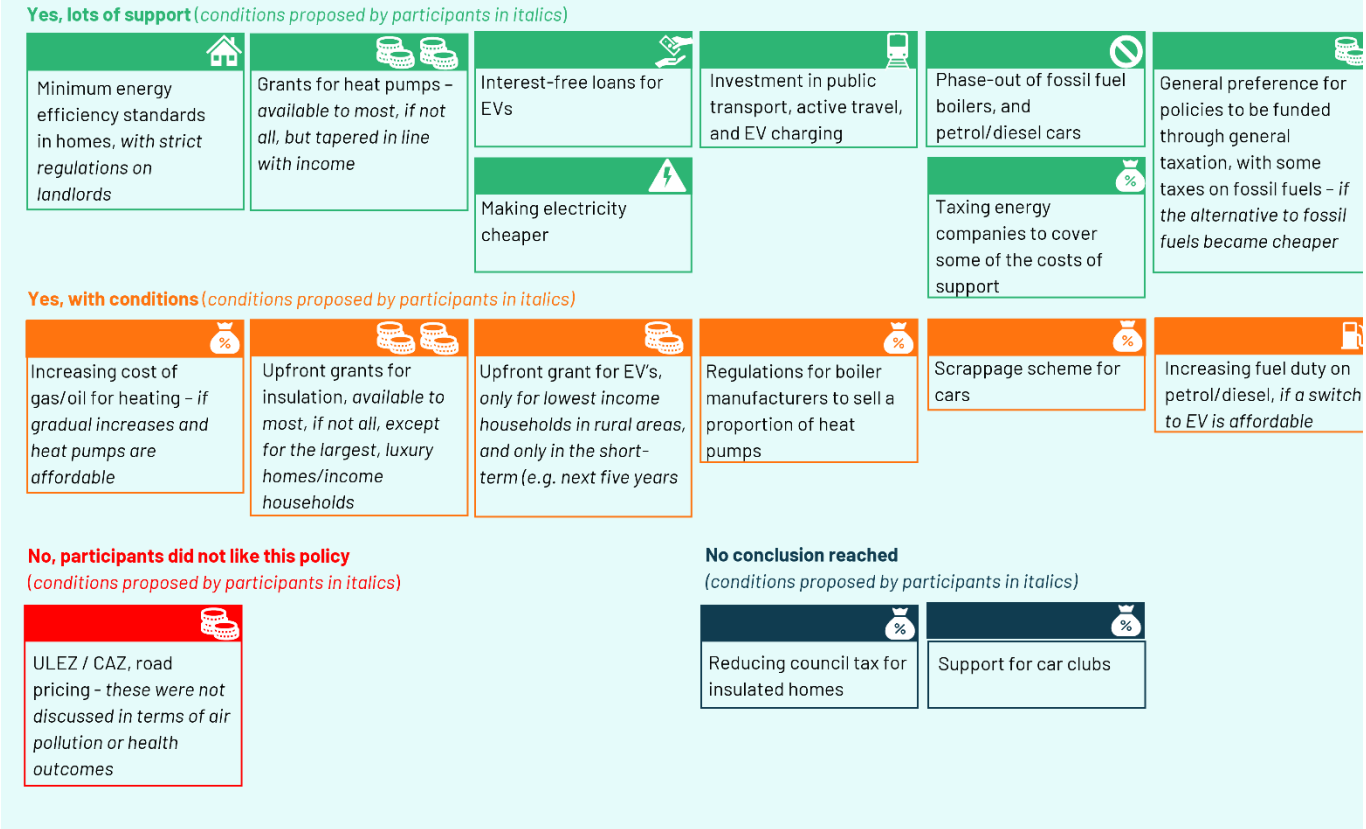
- Participants wanted phase-out dates for boilers and petrol/diesel vehicles included in their policy package, and public transport infrastructure to be significantly improved.

- When considering how to pay for the financial support, participants generally seemed to prefer general taxation – with transparency over how tax money is spent – with some policies being funded by changes to relative pricing (for example, gradually increasing the cost of petrol/diesel).

- Participants were generally not supportive of policies like ULEZ and road-pricing which they saw as potentially penalising people who are unable to otherwise change their actions, although it should be noted these were only discussed in the context of how they impact on household choices for Net Zero (not wider co-benefits).

In the final workshop, to further outline their policy package, participants were asked a series of follow-up questions. The final policy package they agreed upon, after further deliberation, is pictured below.

Figure 4.2: Final Citizens' Policy Package

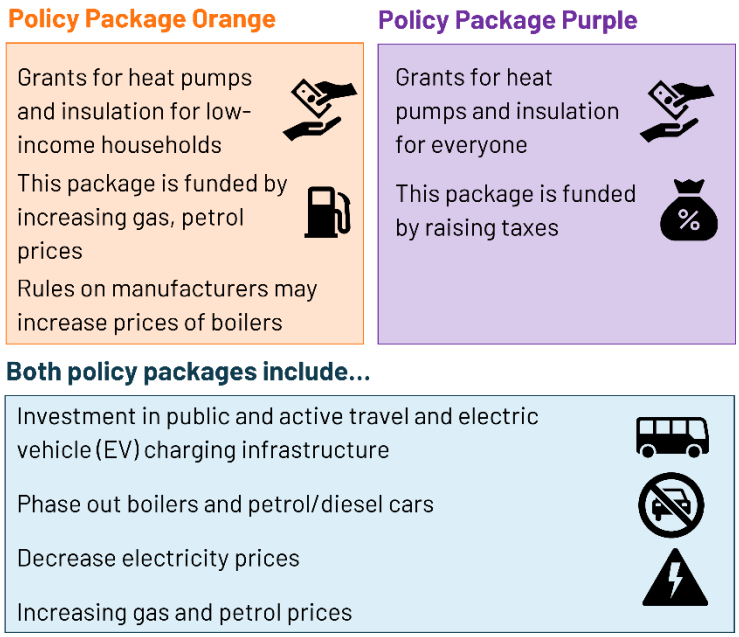


4.1 Introduction to the CCC's distributional impacts model

As part of the process, the CCC shared findings from its distributional impacts model. This estimates how different archetypal UK households are impacted by different combinations of home heating and surface transport policies. The distributional impacts model can measure the impact on household costs and savings, and on the exchequer, of different groups of policies. Impacts shift based on which combinations of policies and means of paying for these are input. The distributional impacts model only covers policies associated with the household choices around home heating and surface transport (it does not cover policies associated with diet and aviation).

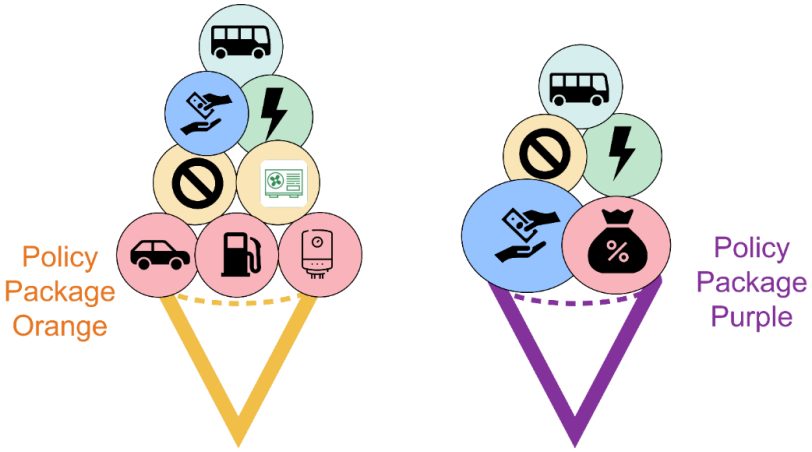
As part of this modelling process, the CCC designed two policy packages, to group individual policies in surface transport and home heating together. Participants were introduced to the two policy packages, 'Purple' and 'Orange', using the image below. Both packages had the same net impact on public funds (i.e. if a policy package had higher spend, higher taxation is required) but had varied policies to achieve the necessary changes to home heating and car use.

Figure 4.3: Policy Packages presented to participants[18]



To visualise the packages, participants were presented with 'ice cream cones' containing different 'scoops' symbolising individual policies. This used familiar icons from a prior online workshop and scoop size, which illustrate how policies were grouped and to highlight common elements between packages.

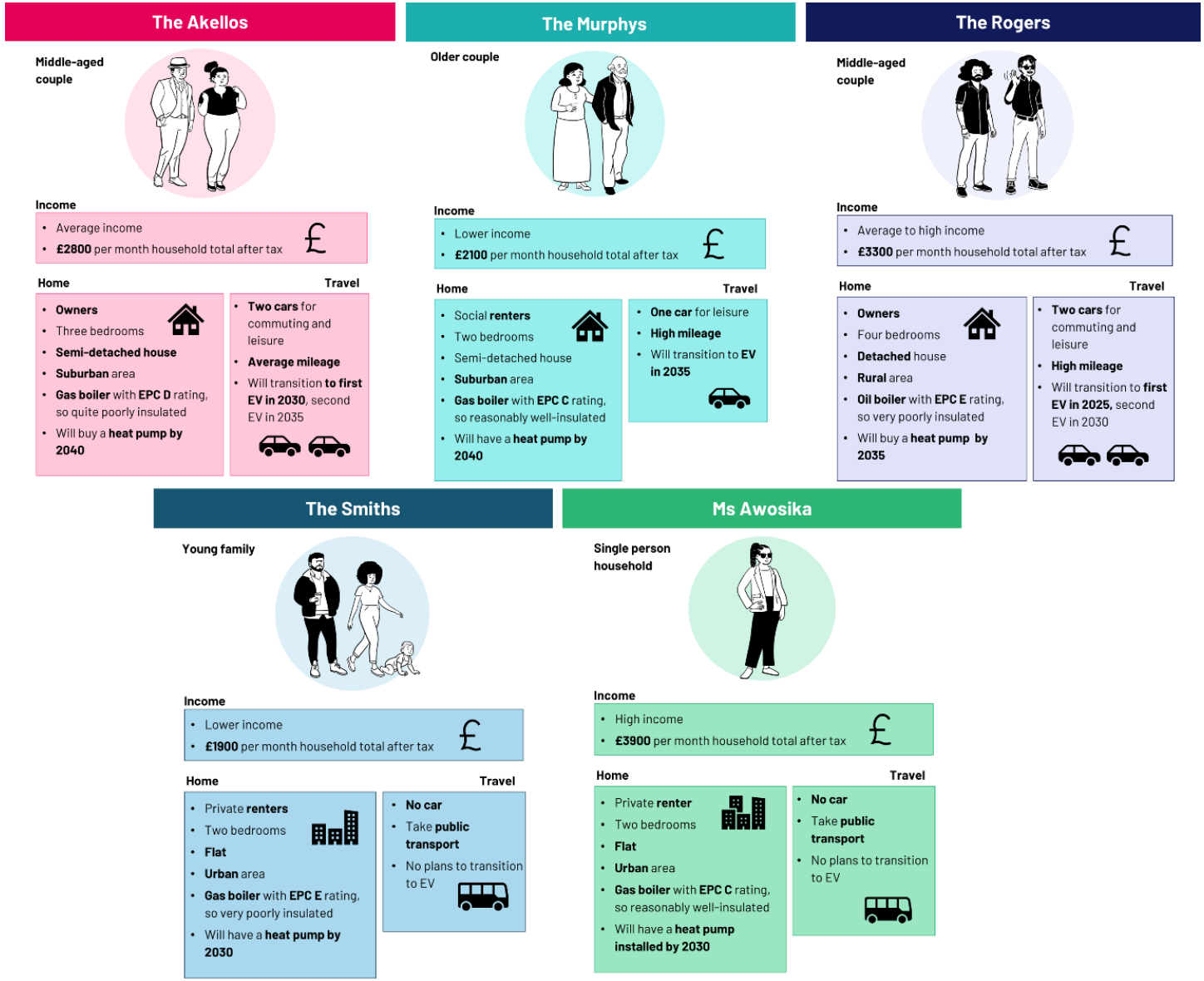
Figure 4.4: Policy package 'ice cream cones'



To help participants think through what was accessible and affordable for households, they were shown the impacts of these two policy packages on the costs and savings for five illustrative households (drawn from the range of household archetypes in the CCC's distributional impacts model) from now until 2050.

[18] Other policies for surface transport included VED and ULEZ. See page 40 for a description of what VED and fuel duties are.

Figure 4.5: Illustrative households as shown to participants for surface transport and home heating.

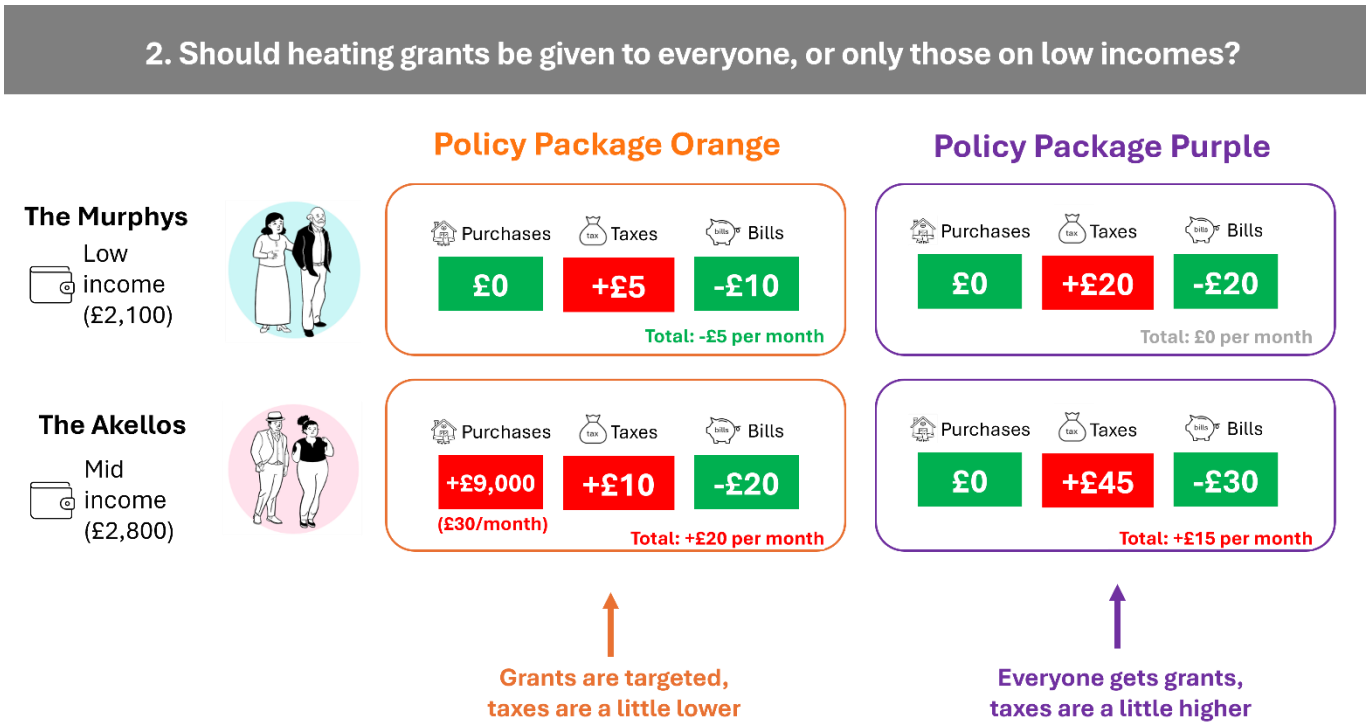


When considering the impacts of different policies on household costs and savings, participants were asked targeted key questions, to help them deliberate on what policies and policy impacts were acceptable. The Key Questions (KQ) were:

1. How much incentive would you need to switch to a heat pump?
2. Should heating grants be given to everyone, or only those on low incomes?
    a. Should higher-income households be given grants when they face higher upfront costs?
3. Should there be grants for electric cars?
4. Is it acceptable that higher-income households get earlier and larger savings because they can afford to buy EVs before lower-income households?
5. Should grants be paid through general taxation, or through increasing prices for those who pollute more?
6. If electricity is made cheaper, should gas be made more expensive?
7. How acceptable are the overall costs and savings?

The below figures (**Figures 4.6 and 4.7**) are examples of the materials shown to participants in Workshop 5 to show how the policy packages may impact the illustrative households in different ways relevant to the relevant key question. Costs and savings provided here are indicative and based on CCC's modelling, not prescriptive costs.

Figure 4.6: KQ2. Should heating grants be given to everyone, or only those on low incomes?



**This slide was shown to participants as a way of providing indicative costs for grants for home heating and cost-savings. The amounts are indicative and reflect monthly costs ('purchases' are presented as a lump sum in the box but broken down into monthly costs underneath). The income specified is the combined household income after tax per month. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice. They were presented to participants as illustrative.*

In Workshop 7, the 'Citizens Policy Package' was discussed further, and participants discussed three follow-up questions (FQs) to help pin down outstanding questions about the draft Citizens' Policy Package, culminating in the final 'Citizens' Policy Package'.

The FQs were:

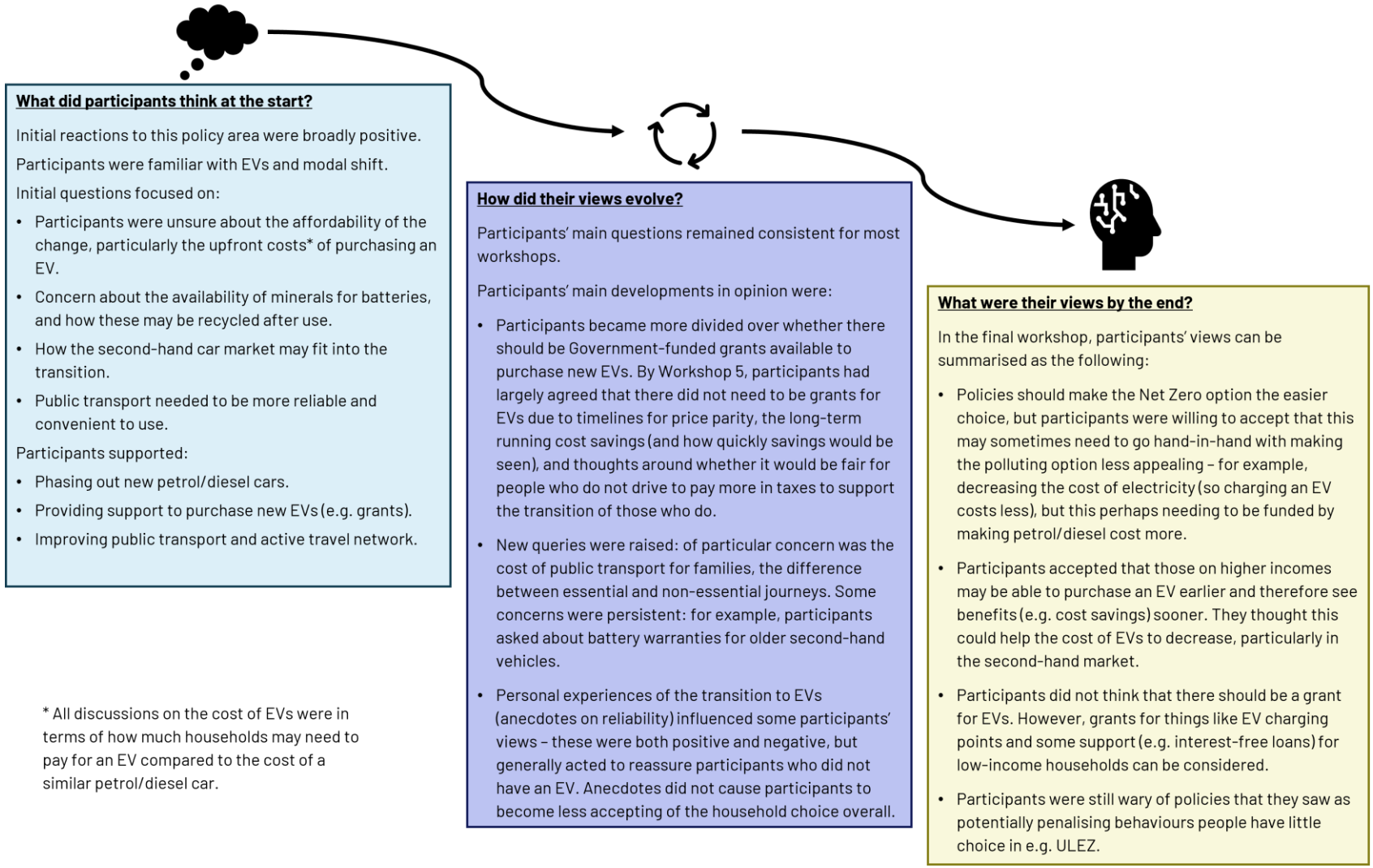
1. Some people preferred putting costs onto gas bills and some onto general taxes. Which do you prefer? What about a combination? (for home heating measures)
2. Do we need grants for EVs or do we need something else?
3. What level of grant is needed? (Exploring the acceptability of different payback periods for the additional cost of a heat pump compared to a gas boiler)

4.2 Surface transport

4.2.1 Participant journey

The following figure shows how participants' views evolved throughout the workshops.

Figure 4.7: Participant journey for surface transport



4.2.2 Initial reactions to household choices for surface transport

I. Initial view: Participants were familiar with and supported the shift to EVs

Surface transport was likely the household choice area with which participants were most comfortable. Overwhelmingly, participants were happy to accept the necessity of household choices relating to surface transport in the first workshop, with EVs appearing a familiar topic to them. For most participants, the shift to EVs was seen as something already happening and was something they had already accepted.

Participants with an EV

While participants were not recruited on whether they had an EV in their household, during discussions some participants said they owned one, or knew someone who had one.

The experiences of these participants were broadly positive in switching from a petrol/diesel vehicle to an EV, noting that while there was a period of getting used to different fuelling and charging requirements, they had become accustomed to this. In one instance, other participants were surprised to learn of the cost savings that a participant said they had experienced since switching. which impacted participants' views in a positive way. For a few participants who knew people who had EVs, they tended to say the experience was more negative – although this was based on second-hand perceptions, rather than their direct experiences.

II. Initial view: Participants had questions about the overall sustainability and environmental credentials of electric cars.

One concern that was frequently and often strongly expressed was around resources for EVs – notably, sourcing necessary minerals for batteries, and the recycling of these minerals in the future, with some participants concerned with running out of these minerals, or batteries ending up in landfill if the transition was not carefully managed. This came up throughout the process, even after specialist presentations which included information about battery recycling.

> "They're pushing for electric cars, but the batteries that are in electric cars, they're going to have to mass produce them. There is currently no safe way to dispose of them, they just go to landfill." – Workshop 1

III. Initial view: Participants raised questions about the infrastructure surrounding EVs, and if it was sufficient to manage the shift.

The availability of infrastructure to support the transition from petrol/diesel to electric cars was something participants raised early on, feeling this would impact whether households would be able to make the change. Participants often cited the availability of EV charging points (both private ones in homes and in public) as a cause for concern for them. Others also questioned whether wider infrastructure would be able to manage the shift required. One participant was concerned that the electricity grid would not be able to sustain such large levels of electricity needed to charge EVs.

> "If they're aiming by 2035 for all new cars to be electric cars and have heat pumps, how are we going to be sure the country can sustain the amount of electricity we will need?" – Workshop 1

IV. Initial view: Participants were worried about the availability and reliability of public transport infrastructure.

On modal shift (from private car to public transport or active travel) participants tended to reflect that the currently available public transport infrastructure was fairly unreliable and difficult to access. Participants who lived in rural areas were particularly sceptical about the capacity of public transport to expand to areas where they lived, and about the feasibility of replacing current car journeys with active travel.

V. Initial view: The upfront cost of EVs was initially a concern for participants, as was the affordability of 'indirect' costs such as insurance and installing home chargers. However, after further deliberation and information EV upfront costs were less of a concern.

Across all workshops when discussing surface transport, and in particular when focusing on EVs, participants emphasised that affordability was a key challenge. Participants' focus on high upfront cost in comparison to equivalent petrol and diesel cars occurred naturally in Workshops 1 and 2 (before they learnt about the costs of EVs in comparison to petrol/diesel cars and expectations that EVs would likely reach price parity with petrol/diesel cars in the late 2020s).

In the first workshop, participants regularly noted concerns that EVs were not currently affordable for most households.

> "Getting an electric vehicle is easy for people who have the money, but if you don't, you're seen as not contributing." – Workshop 1

In some cases, participants in Workshop 2 noted that they had considered purchasing an EV but had not done so – either because of the cost of the vehicle itself, or because of the insurance premiums they perceived as associated with them. Some participants reflected in early workshops that the costs surrounding EVs (i.e. insurance costs or installing a charging point) were seen as higher than the equivalent for petrol/diesel cars.

Overarchingly, participants felt that these "indirect" costs also needed to be considered when the shift to EVs became the default, due to phase-out dates There was also scepticism that EVs and petrol/diesel cars would cost the same soon, in part due to these "indirect" costs, although this scepticism decreased in later workshops.

VI. Initial view: Some participants were concerned about costs both for home heating and electric cars occurring in a similar timeframe.

Surface transport was discussed in the same sessions as home heating, meaning participants were introduced to shifting to EVs and heat pumps in the same workshops. As both changes require upfront expenditure for households, a few participants raised concerns about the pace and scale of changes occurring simultaneously and whether households would be able to afford to do both, even with grants for heat pumps.

4.2.3 Views on policies and distributional impacts for surface transport

I. Participants agreed that phasing out the purchase of new diesel and petrol cars was acceptable and a welcome policy.

'Changing the rules' to phase-out the sale of new petrol and diesel cars in the future was unanimously seen as acceptable.

"Phasing out diesel and petrol cars is a good thing." – Workshop 4

Participants' reasons why ranged from thinking that a phase-out would be the best way to encourage action from manufacturers and the Government to support the transition; or seeing the phase-out as the best way to encourage everyone to make the shift. Perhaps due to pre-existing knowledge of the phase-out in future, participants seemed to view this household change as something that was already happening to some extent.

II. Participants generally supported improving and increasing the use of public transport and active travel networks.

Most participants saw this policy lever as being an essential prerequisite for encouraging modal shift and replacing some car journeys with public transport. Some participants even reflected that improving public transport may be a more easily achievable policy objective than replacing traditional cars with EVs.

"It would be easier to improve our train networks than for everyone to get an EV." – Workshop 4

Participants often said they supported this policy lever due to the commonly held perspective that the current infrastructure for public transport was insufficient to facilitate more widespread usage – and, crucially, to replace householders' essential car journeys, for example commuting to work or taking children to school. Participants felt that until this perceived unreliability and inconvenience was resolved they would not be able to replace their current essential car journeys with public transport.

Rural participants in particular emphasised throughout workshops that public transport and active travel infrastructure needed significant improvements. Specialists explained that on average less modal shift is assumed in rural areas in CCC analysis.

"I like the policy package as it is, but I worry about the public transport infrastructure for people who are rural and not as well connected." – Workshop 7

Participants also highlighted that alongside expanded and more reliable infrastructure, public transport would need to become cheaper and more convenient than driving to incentivise consumers to use it.

III. Even with infrastructure improvements, a few participants felt certain car journeys would not be possible to switch away from, and that encouraging cycling as an alternative would be challenging.

Participants were generally less positive about replacing essential car journeys with cycling – for example, saying that commuting to work by cycling was not an option as it would take too long. However, some did feel that citizens may be convinced to cycle more if 'Suggest' policies such as information campaigns were made available to emphasise the co-benefits of active travel (i.e. around health) and if cycling infrastructure was improved.

"Even to cycle to work. There are potholes all over the road. There are not enough cycling lanes. All that infrastructure would have to be changed as well." – Workshop 4

A less frequently held view was that improvements to cycling and public transport infrastructure would not result in uptake of these alternative modes of transport. Participants who thought this often felt that even with improvements, these methods of transport remained more time-consuming and less convenient than driving.

IV. Most participants were concerned about policies that would increase costs for those driving petrol/diesel cars (VED, fuel duty, ULEZ), although some thought these might be acceptable provided EVs cost the same as petrol/diesel cars.

As highlighted in cross-cutting themes, where a behaviour was seen as being a necessity, participants thought it was less acceptable that households may experience negative impacts. Participants felt that 'penalising' households who are unable to change their behaviours was rarely acceptable. They were concerned that households who had little choice but to continue driving as much as they currently do could face additional costs, particularly if they were lower-income.

> "[Petrol/diesel cars] are not just going to disappear overnight, so increasing taxes on petrol and diesel cars seems a bit harsh. Not everyone's going to run out overnight and throw their car in the scrapyard and buy an electric one." – Workshop 4

Another concern was that policies which would increase the cost of driving a petrol/diesel car (ULEZ, CAZ, or increasing fuel duty on petrol/diesel, VED increases) would penalise individuals who could not afford an EV early but needed to drive. For many participants, increasing the cost of driving through these policies would only mean people are paying more to complete journeys they need to drive.

> "We've had these kinds of things come in before, like sugary food items and cigarettes. They're not even stuff you need, and people will still pay ridiculously more for them. So, when it comes to needing your car to get about, if they put stuff up, you'll still do it." – Workshop 4

A few participants disagreed, noting that if driving a petrol/diesel car became more expensive than an EV alternative, they would at least consider changing for that reason alone. However, these participants generally had the condition that the upfront cost of an EV became the same price as or cheaper than a petrol/diesel car (either outright, or through grants or other support for the "indirect" costs, such as charging points installation). These views developed as the workshops progressed, with participants' perspectives on balancing these costs changing, particularly around grants and whether it is acceptable to make driving petrol/diesel vehicles less appealing.

V. Participants were initially divided over whether their policy package should include EV grants, but over time increasingly felt this was not a priority, due to the savings in running costs of EVs. Instead, they preferred interest-free loans.

a. Participants were initially divided over whether the Citizens' Policy Package should include EV grants, and there were differing views on who would be eligible and how they should be funded.

When policy levers were first introduced participants were divided on whether government-provided grants should be provided for EVs. In Workshop 4, for some participants, providing grants to reduce the upfront cost of purchasing an EV was an essential prerequisite for the shift being achievable and affordable.

> "It's good to bring people in, to give the grant so people can actually buy the electric cars. I think it's a great thing to have. If I had a grant, I probably would [buy an EV]." – Workshop 4

Others, however, were less certain. For some participants, it seemed counter-productive to provide grants for EVs if they were paid for through increased general taxation.

> "You're robbing Peter to pay Paul. You're getting a cheaper EV, but if the Government will do these schemes, the taxpayer has to pay for it. You're not really in a better position." – Workshop 4

Participants also questioned the scale of grants that would be acceptable: for example, whether households with more than one vehicle should be offered grants per vehicle or one per household.

For participants who did not think grants were necessary in Workshop 4, a key consideration was that a phase-out policy would only apply to new petrol and diesel cars, rather than second-hand. Participants felt a grant may not be necessary to support households purchasing a new vehicle (rather than second-hand), as they felt that only higher-income households would purchase a brand new vehicle.

Following discussions, participants also started to suggest alternatives: interest-free loans or scrappage schemes, provided by, for example, car manufacturers which could be paid back over a longer period of time. A suggestion was made for this to be based on income and what an individual can afford at the time. Others suggested employment-based systems, for example a salary sacrifice scheme that would enable individuals to purchase or use an EV for work. There was no consensus on the acceptability of such policies.

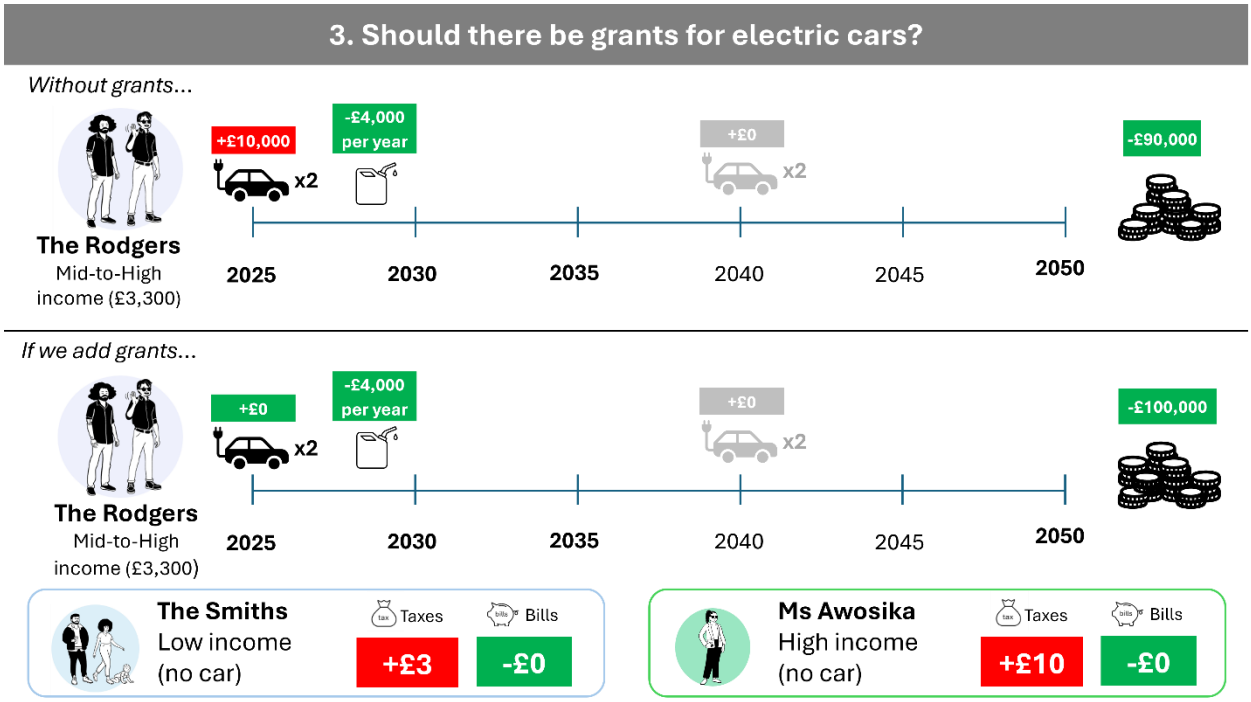
b. Following deliberation, participants felt that a grant for EVs was not necessary and that interest-free loans or similar would be more appropriate.

As workshops continued, in Workshop 5, participants were asked to consider **KQ3: Should there be grants on electric cars?** The two packages presented by the CCC did not have EV grants. At this point, participants' views began to shift towards seeing EV grants as not necessary. This was both because phase-out would be only for new vehicles, and in response to specialist presentations evidencing that EVs would likely reach price parity with similar petrol/diesel cars by the late 2020s, removing the challenges around affordability of an EV in comparison to a petrol/diesel engine.

However, they were still concerned about the wider upfront costs associated with the shift to EVs.

> "It would be nice for the Government to provide ¾ towards the EV charger." – Workshop 4

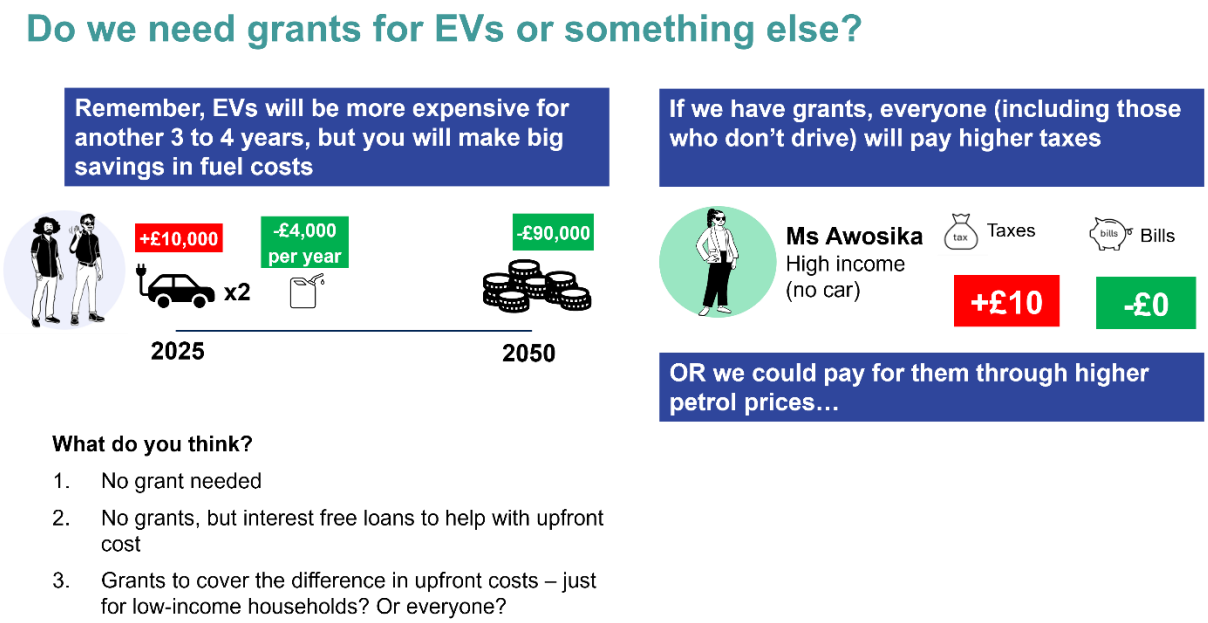
*Figure 4.8: KQ3: Should there be grants for electric cars?**



**This slide was shown to participants as a way of providing indicative costs for EV grants and cost-savings. Along the timelines, the box above the car reflects the one-off additional cost of buying two EVs compared to two petrol/diesel cars in 2025. The box above a gas can reflects the annual saving on driving costs. The greyed-out car reflects that replacing a car in 2040 carries no additional cost compared to buying a petrol/diesel car. The box above the money image indicates the overall net household cost/saving by 2050. Along the bottom, the red box reflects the monthly change in taxes, and the green box represents the monthly change in bills). The income specified is the combined household income after tax per month. It was made clear that the Rodgers have relatively high mileage, which affects the level of savings people with cars would experience. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice, they were presented to participants as illustrative.*

They thought there could be potential for EV charger grants, scaled support, and interest-free loans. These views were strengthened in Workshop 7 when discussing **FQ2: Do we need grants for EVs or something else?**

*Figure 4.9: FQ2: Do we need grants for EVs or something else?**



**The £10,000 and £90,000 amounts are presented as a lump sum, while the taxes and bills are monthly. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice, they were presented to participants as illustrative.*

By the final workshop (Workshop 7), despite some disagreement in earlier workshops, participants arrived at a consensus on having no EV grants. There were three core reasons for participants' views shifting:

- Projections that EV prices would naturally decrease over time due to market forces and technological advancements. This information provided important reassurance against participants' key concern that EVs were, and would continue to be, more expensive than the equivalent petrol and diesel vehicles, even on the second-hand market. However, some participants remained sceptical about the timelines included in presentations (for example, that second-hand EVs had already reached price parity) – referring to, for example, the wider costs of purchasing an EV like installing a home charge-point (this is further explored in **VI** below).

- EV grants would be unfair to non-drivers, who would pay through taxation for those who do drive. Some also felt that EV grants may disproportionately benefit higher-income individuals who could already afford them.

"I was in favour of grants when I first saw it, but now seeing we have to pay for all these things I'm moving to interest-free loans as opposed to grants, I think it's going to be people's choice to purchase electric and not everyone drives equally." – Workshop 7

- Participants were given information about the cheaper running costs of EVs. This led them to think it might be more appropriate to have help with the upfront cost via e.g. loans, and for people to pay this back with the savings they made.

"No, they don't need a grant. If what you're saying is correct, and the prices are coming down anyway, and they're going to save because electric is meant to be cheaper" – Workshop 5

Participants indicated a preference for alternative methods of funding, for example scaled support, interest-free loans, or scrappage schemes. These would help overcome the barrier of having funds for the upfront cost, but were fair given they could be paid off with the savings from lower running costs and be an effective way to support the greater financial needs of lower-income households, without an undue financial burden on the taxpayer.

Participants' views on grants for EVs were different to what they wanted to see for heat pumps, which they discussed at the same time. This may be because there was not an expectation that the upfront cost of a heat pump would become cheaper than a gas boiler, the savings in running costs for heat pumps were seen as less significant, participants saw home heating as a more essential need, or because they perceived the barriers to making household choices on home heating as more difficult to overcome without support.

VI. Despite eventual agreement on overall grants for EVs, some participants consistently advocated for government support to cover "indirect" EV costs, such as home charge points.

As noted above, participants sometimes expressed concerns about the indirect costs surrounding EVs. These could be higher than for a petrol/diesel car (for example, car insurance), or an added expense (for example, installing a charging point).

> "I don't think the grants are needed, but the installation costs need to be supported." – Workshop 7

These conversations were more prominent in later workshops (Workshop 4 onwards), when discussing in more detail what the transition to EVs would entail. Participants who voiced these concerns focused on the cost of charging points and potential insurance premiums.

> "I also think that getting an electric car sounds great, but it comes down to cost. Car insurance is a lot higher for electric cars because it costs more to fix things if you have a bump. It's not attractive to me." – Workshop 1

It was felt that these costs would likely need to be addressed or proactively mitigated for the transition to EVs to be affordable to as many people as possible. Unlike EV grants, these views did not change over the workshops. By Workshop 7 they thought there was potential for EV charger grants – potentially alongside some support (limited grants or loans) for low-income households to purchase an EV if needed.

VII. Following deliberation, participants agreed it was acceptable to increase the price of petrol and diesel to help fund any support for EVs (such as grants for 'indirect' costs).

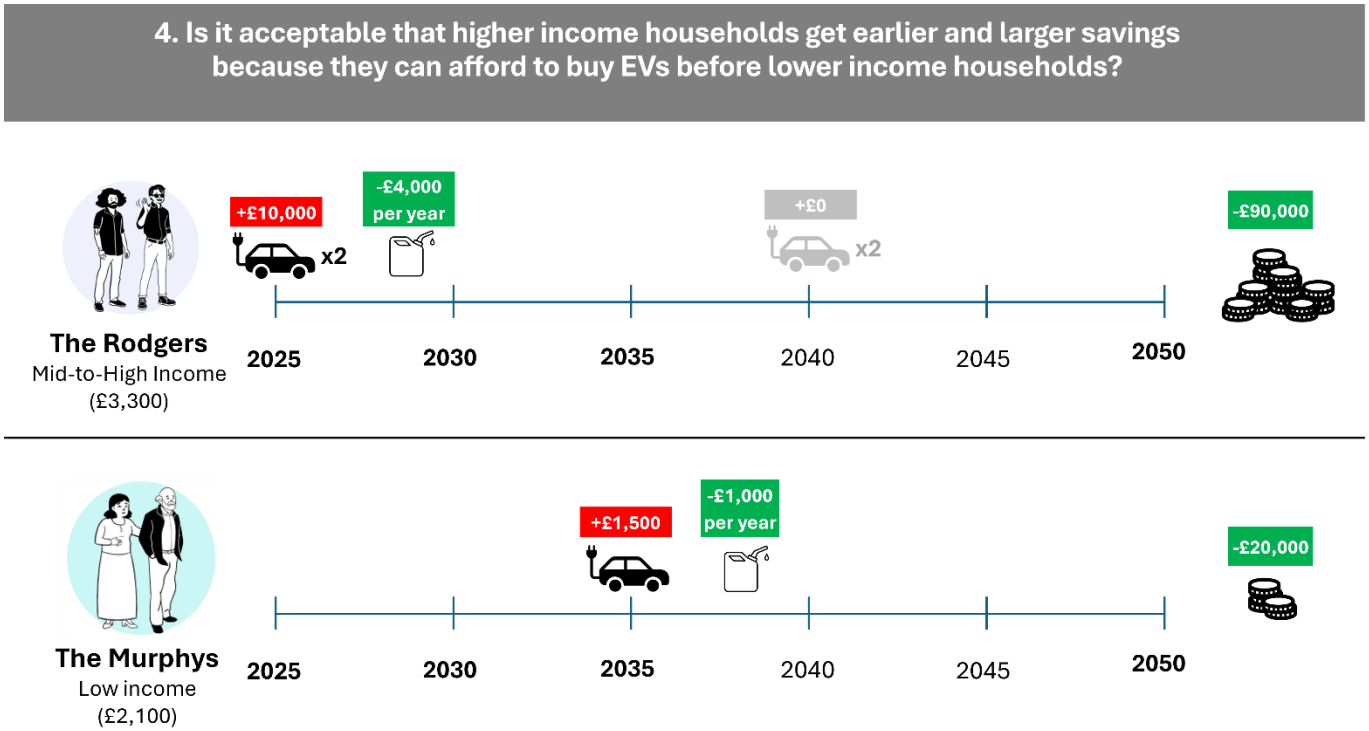
In the final workshop, participants discussed how this support could be paid for. They were asked about policies which would make petrol/diesel cars more expensive to run to help fund any support for EVs – for example, the potential for increasing fuel duty on petrol or diesel.

By this workshop, participants generally agreed on the importance of increasing the price of petrol and diesel to encourage change, but they were still concerned that this would disproportionately affect lower-income households, or those who had to drive for essential journeys in lieu of sufficient public transport. While this was seen as an acceptable policy, participants thought this should be incrementally increased rather than overnight, and for any increases to be in line with improvements in public transport infrastructure and with concurrent decreases in the cost of electricity, rather than be an isolated policy.

VIII. Participants generally accepted that those who could afford to buy EVs earlier would benefit from greater savings.

In Workshop 5, participants were asked: **KQ4: Is it acceptable that higher-income households get earlier and larger overall savings because they can afford to buy EVs before lower-income households?**

Figure 4.10: KQ4: Is it acceptable that higher-income households get earlier and larger overall savings because they can afford to buy EVs before lower-income households?



**This slide was shown to participants as a way of providing indicative costs and savings in relation to EVs. The amounts are indicative. The income specified is the combined household income after tax per month. Along the timelines, the box above the car reflects the one-off additional cost of buying two EVs compared to two petrol/diesel cars in 2025. The box above a gas can reflects the annual saving on driving costs. The greyed-out car reflects that replacing a car in 2040 carries no additional cost compared to buying a petrol/diesel car. The box above the money image indicates the overall net household cost/saving by 2050. It was made clear to participants that mileage varies by household and will affect the level of savings experienced from lower running costs of electric cars. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice, they were presented to participants as illustrative.*

Participants generally accepted this premise, although for many this was more a reluctant acknowledgement of "how things are" than something they thought was desirable. They tended to recognise that those with greater financial resources often have access to a wider range of opportunities and benefits, including early adoption of new technology. A few participants also noted that those with more money were taking on larger risks with newer technology.

> "I feel like that's just life, though, isn't it, really? You've got more money; you get stuff earlier…" – Workshop 5

Similarly, when thinking about lower-income households not seeing early savings, participants did not generally perceive this as a penalty. Instead, they saw "early savings" as an advantage enjoyed by higher-income households. This was a notable point in the framing of long-term benefits, with participants being more influenced by short-term costs (which were perceived as a penalty) than by long-term potential savings (missing out on these was not perceived as a penalty).

Participants also noted the potential for the second-hand vehicle market to mitigate affordability concerns. As higher-income households upgrade to newer models, the availability of more affordable used EVs would increase, which participants felt could benefit lower-income households in the long run.

> "High-income people buying electric cars could make them cheaper in the long run." – Workshop 5

Participants had some concerns about the presentation of early adoption and the savings this could lead to. Some thought that this might incentivise lower-income households to make financially unwise decisions in order to access early benefits.

Despite this, there were some concerns that this could exacerbate differences between different income groups.

> "Don't you think [the Murphys, a lower-income illustrative household] will feel a bit left behind and encourage them to get into debt, have a loan or something, just to get themselves an electric car?" – Workshop 5
>
> "[The Rogers, a mid- to higher-income illustrative household] are being able to win money because they went in earlier, and that's not fair - there should be an avenue where ordinary folk can take advantage of the same technology without upfront costs." – Workshop 5

IX. Participants consistently had questions about the second-hand market throughout the workshops, and they often emphasised that policies needed to work for the second-hand market, too.

Participants' questions on the second-hand market remained even in later workshops, when these concerns were addressed by specialist presentations.

- **Warranties:** Despite specialists explaining that batteries have an eight-year warranty from the original car manufacturer, participants remained concerned about what these warranties may look like for older vehicles, and the cost of replacing EV batteries in older vehicles (that are then no longer covered by the original warranty).

- **Price parity timeframes:** In Workshop 5, specialists provided rough timelines for when EVs are likely to reach price parity with new petrol/diesel vehicles (late-2020s). While this assuaged some participants' concerns about the affordability of EVs for lower-income households, others remained sceptical about whether these timelines were realistic for the second-hand market, and questioned whether price parity was achieved in terms of whole costs (for example, whether this included the cost of installing a charging point).

By the final workshop, participants had not concluded on what should be done in the second-hand market specifically. They were clear, however, that there should be clear policy to ensure households on the reliability of second-hand cars, and that prices fell to price parity with petrol/diesel cars.

4.2.4 Areas of agreement and disagreement

This section brings together the key areas of agreement and disagreement throughout panel deliberations on surface transport.

Agreement

- **Recognition of the need to change driving behaviours:** Participants agreed that reducing driving by about 10% by 2050 through modal shifts to walking, cycling, or using public transport is important, and saw it as a critical step towards reducing emissions in the surface transport sector.

- **Desire for public transport networks to be improved to facilitate wider behaviour changes:** There was a strong consensus on the need to improve public transport and active travel networks. Participants felt that current infrastructure was insufficient and unreliable, making it difficult for people to switch from driving to using public transport or cycling. They viewed enhanced public transport as essential for enabling the wider behavioural changes required to meet Net Zero targets.

- **Acceptability of phasing out the sale of petrol and diesel vehicles:** Participants unanimously accepted the future phase-out on the sale of new petrol and diesel cars. They saw this as a necessary measure to drive the transition to EVs and thought that it would encourage manufacturers and the Government to take proactive steps to facilitate this transition – although there was also agreement that a key condition of this would be that EVs would soon reach price parity, and that some limited support (e.g. interest-free loans, or grants for home charging points) was available.

- **Importance that EVs were affordable for all households:** Affordability was a key concern for participants, who were initially worried that the high upfront costs of EVs would make it difficult for many households to transition, particularly those with limited financial means. In later workshops, and following deliberation, these concerns became less prominent, in large part due to anticipated price parity between EVs and petrol/diesel cars. Participants were still concerned in the final workshop about the indirect costs associated with EVs, such as higher insurance premiums and the expense of installing home charging points.

- **The need to have some form of incentive for at least some households, to facilitate the switch to EVs:** Initially participants agreed that financial incentives (such as grants or interest-free loans to help with the cost of EVs) should be provided to make EVs more affordable – in particular, for lower-income households. However, in later workshops, participants' views on grants changed, with consensus being that, in most circumstances, these were not necessary. This led to the suggestion of very specific grants or the provision of interest-free loans, given there would be cost savings from lower running costs over time.

Disagreement

- **The effectiveness of improving public transport infrastructure:** While most participants agreed that improving public transport was essential, there was scepticism by some about whether it would lead to widespread modal shift. Some participants doubted that even with improved infrastructure, people would shift from driving to using public transport or cycling, especially for essential or long journeys like commuting or school runs.

- **The acceptability of making driving petrol/diesel vehicles more expensive:** Participants were divided on the acceptability of increasing the costs associated with polluting behaviours, such as higher VED or implementing ULEZ and CAZ. While some saw this as a necessary measure to discourage polluting activities, others felt it unfairly penalised those who could not afford to switch to EVs or lacked access to reliable public transport. However, it should be noted that discussions

focused on these policies' role in supporting modal shift and EV purchases, instead of broader considerations like air quality or future fiscal gaps from reduced fuel duty.

- **Whether increasing the cost of driving petrol/diesel vehicles would encourage behaviour change, and if it was acceptable:** There was disagreement over whether making driving petrol/diesel cars more expensive would effectively encourage behaviour change. Some participants believed that higher costs would incentivise people to adopt EVs if they became cheaper or comparable in price to an equivalent petrol/diesel vehicle. Others argued that this approach would merely impose financial burdens on those who could not afford to switch to an EV, viewing it as 'punitive' rather than motivating.

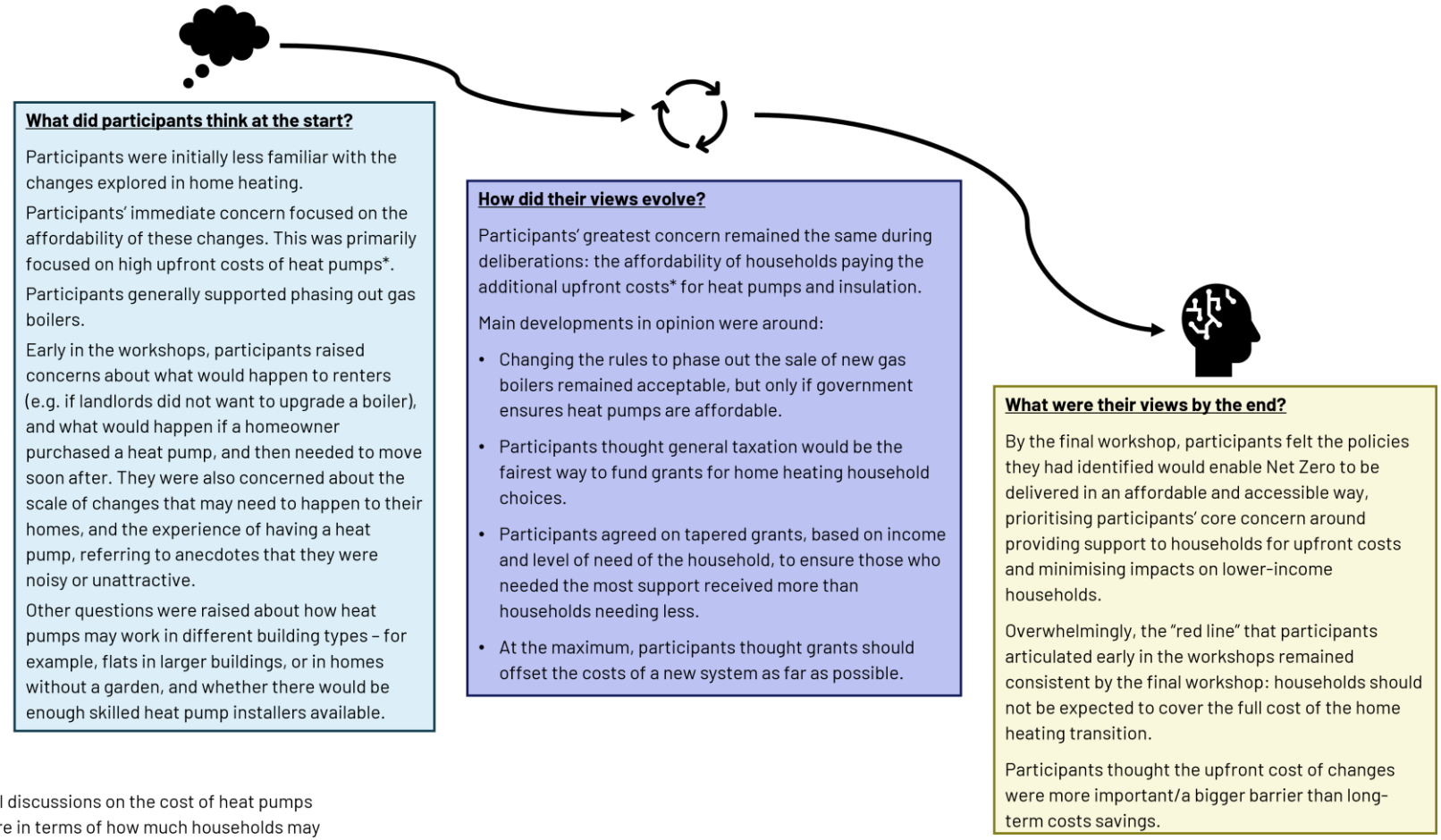
In voting at the end of the final workshop, more than half of participants said they supported policies such as grants for EV charging points (18 out of 26), scrappage schemes (18 out of 26) and interest-free loans (13 out of 26).

4.3 Home heating

4.3.1 Participant journey

The following figure shows how participants' views evolved throughout the workshops.

Figure 4.11: Participant journey on home heating



4.3.2 Initial reactions to household choices for home heating

I. Initial view: Participants were generally less familiar with heat pumps and insulation than other household choices.

Participants were less familiar with heat pumps. One participant said that they had recently been replacing their gas boiler, and their provider had not mentioned a heat pump to them – they said they were therefore surprised to hear about the upcoming transition to heat pumps in all homes.

> "We're constantly asked by [energy supplier] to get a new boiler. There is never a mention of getting a heat pump. People are still paying for new boilers that cost thousands." – Workshop 4

The fact that participants were learning new information sometimes led to some participants reporting feeling worried about the scale of change to their homes.

> "The thought of the heat pump and the noise, it seems too much." – Workshop 4

Before learning about policies that could support these changes, there were participants who thought they were unrealistic. Participants saw this policy area as the one that will require the most disruption in their day-to-day lives – for example, to remove gas boilers and install heat pumps, and in terms of the work required to make homes more energy efficient. Participants were initially concerned about how many changes need to be made in the near future, considering both home heating and surface transport.

II. Initial view: When participants first learnt about the changes to home heating, the main concerns they had were around the upfront cost of a heat pump, and how homeowners and renters would be able to access one.

When learning about the household choice required in the home heating sector, and before participants learnt about the costs and policies available, participants primarily focused on the upfront costs associated with buying a heat pump in comparison to a boiler and paying to upgrade homes to make them more energy efficient.

> "I would welcome changes that help us reach Net Zero, but I am concerned at the Government's ability to make a transition easy and affordable. For example, changing key aspects of my home like the boiler and gas cooker would require a lot of planning and hiring of people, which costs money." – Online community comment, post-Workshop 1

Participants highlighted that either in their own experience, or the experience of others, they could not imagine landlords voluntarily installing measures like heat pumps or energy efficiency upgrades at the request of the tenant or allowing them to make changes themselves.

For homeowners, participants were concerned about the high upfront costs and length of the payback period. Participants asked what would happen if they moved home after purchasing a heat pump and installing energy efficiency upgrades to their home. They wanted to know about the payback period of these technologies (i.e. how long it would take to recoup investment through lower running costs) and highlighting a concern that this may not be swift enough to make it an attractive investment for homeowners, particularly those whose circumstances may change, such as younger families.

III. Initial view: Participants had sometimes heard negative anecdotes about what it was like to have a heat pump.

Alongside upfront costs, participants also sometimes noted concerns about the practicalities of what it was like to have a heat pump. Some highlighted that they had heard heat pumps were quite noisy, with

others reflecting on this after the specialist presentations in Workshop 4 (which noted the sound and space aspect of a heat pump) and were worried about how this would work for different households.

> "I think in the dead of the night, if you're in a semi-detached house, the buzz of it, I don't know if I'd like it." – Workshop 4

However, others reflected that the change is likely something people will eventually get used to.

> "So many things are constantly changing. When you first hear about them, you think you won't like it. It's different. Then, naturally, you just don't notice it anymore." – Workshop 4

Others also asked about whether households would be able to have the space to install a heat pump – for example, participants noting that households without access to a garden or without space outside their home, may struggle to fit one.

> "It will be an issue, where space is tight. I can't see it working for everybody." – Workshop 4

This extended beyond space for a heat pump – the Workshop 4 specialist presentation noted that households would also need a hot water cylinder to store hot water a heat pump produces. Participants often reflected that it would be very challenging for lots of households to find space for this, particularly if they lived in flats or had limited spare space where this could be stored. Some participants also asked about the possibility of sharing hot water cylinders or heat pumps, if they lived in a larger block of flats. While this question was answered by specialists, it remained an element that participants thought needed to be considered when designing policy.

> "If everyone has to have individual water tanks, where's that space going to come from?" – Workshop 4

One participant noted that they had disposed of their water tank[19] in the past and noted that other properties had likely been encouraged to do the same. They questioned, in that context, how it would be feasible to add hot water cylinders into properties that have removed them.

IV. Initial view: Some participants were concerned about skills in the supply chain.

Participants were worried about the requisite skills in the workforce to properly install and maintain heat pumps. Participants shared anecdotes from their own experience or people they knew about challenges with getting insulation or heat pumps installed. They expressed concerns not only about the reliability of installations, but also about the current shortage of skilled labourers with the expertise needed to properly install these measures.

> "Someone has to pay for it, who is paying to train up the technicians to fit these heat pumps? The first group we had on screen, there was this spiders web of people not knowing how to fit the heat pumps […]. My parent's heat pump has broken twice, and it's still not fixed." – Workshop 4

This concern about skills, combined with low awareness of heat pumps among the panel, meant participants also reflected that they did not feel confident that they would be able to hire someone to fix any issues with their heat pump in the same way they would with a boiler.

[19] This conversation was in reference to hot water cylinders and water tanks.

"I can phone someone to fix my boiler. I don't know that with a heat pump." – Workshop 2

4.3.3 Views on policies and distributional impacts for home heating

I. Participants saw information provision as being important to encouraging changes to how people heat their homes.

Throughout the workshops, there was a common theme that participants were unsure of what changing to a heat pump would entail, tending to rely on anecdotes. As a result of this, while not an illustrative policy presented to participants, they often suggested they may feel more confident about the required changes to heating their homes if they heard case studies or further information on what changes may be necessary, and how these can be best achieved.

"Confidence comes with knowledge and people are scared about what they don't know […]. Confidence needs to be instilled." – Workshop 4

Some were also concerned about misinformation and suggested reliable and easily accessible information should be provided. Some participants thought guidelines and information on what support is available should be widely accessible. Typically, participants made suggestions on how to engage other audiences – for example, older participants suggesting using social media to engage young people, while younger participants suggested using radio and TV.

II. Participants thought that phasing out the sale of gas boilers and introducing minimum energy efficiency standards for new and existing private rented homes was acceptable and important.

Similarly to their views on petrol/diesel cars in discussions around surface transport, participants unanimously saw phasing out the sale of new gas boilers as an acceptable policy, provided that this was based on when boilers needed to be replaced. The reasons participants gave for this mirrored those given for the phase-out of new petrol/diesel cars: this was either seen as the best way to ensure that businesses, government, and households were prepared for the changes; or it was seen as a change that is already underway.

Similarly, participants also thought it was acceptable – and in many cases centrally important – to 'Change the Rules' about insulating homes. CCC presented, as an example for this, requirements for landlords to increase the energy efficiency of private rented homes. Participants felt strongly that this policy was acceptable, but also frequently brought up planning permissions and building requirements for new homes. They felt strongly that requirements for certain levels of energy efficiency should be met both in already-existing rental properties, but also for new builds. Participants thought it was important to take a proactive approach to new homes, including heat pumps becoming the standard.

For participants, a condition of changing the rules for existing households was changed rules for developers and those building homes, who they often saw as having a responsibility to ensure new homes already meet requirements that old homes will need to improve towards.

"You have to tackle old housing stock and new housing stock. There should not be any planning permission that allows houses to be built [without this]. There should be rules and regs about minimum standard of insulation and resilience for energy consumption." – Workshop 4

Other policies relating to home efficiency standards were discussed less often and tended to be less likely to result in consensus – for example, participants were asked if it would be acceptable to decrease

the cost of council tax for homes that were a certain energy efficiency level. Some thought this would help incentivise households to make changes; others thought this would be challenging to implement or would unfairly 'penalise' households with draughtier homes unable to afford efficiency upgrades.

> "You can imagine an advert for it encouraging you to get a heat pump to get cheaper council tax. You're saving on one side and paying for the other to get the ultimate goal." – Workshop 4

III. Participants were unanimous that there should be some level of grant support for upfront costs of heat pumps and insulation.

As noted in **Initial reactions**, participants were concerned about the upfront costs associated with purchasing heat pumps and with installing energy efficiency upgrades to their homes. This view became firmer as workshops continued. As such, participants were unanimous in their support for providing grants to facilitate households to purchase heat pumps and install insulation.

> "I think grants are the way forward, initially, to get people into it, so it becomes more common. In terms of who should get them, I think the best way is people who will need that financial support. […]. Grants will have to be given to people with less income, because it will take them a lot longer." – Workshop 4

This sentiment ties into a cross-cutting theme (see **Chapter 7 Cross-cutting findings**): participants did not think it was acceptable for households to bear the brunt of paying to transition if a behaviour was seen as a necessity.

IV. Participants grappled with who should be eligible for a grant, and generally thought grants should be available to households of all income levels but tapered based on income or need.

While participants' views on who should be offered support differed, in Workshop 2 (when participants were first introduced to policy levers), the most dominant view was that all households should be offered a form of grant.

In Workshop 5, participants were asked to consider: **KQ2: Should heating grants be given to everyone, or only those on low-incomes?** and **KQ2a: Should higher-income households be given grants when they face higher upfront costs?**

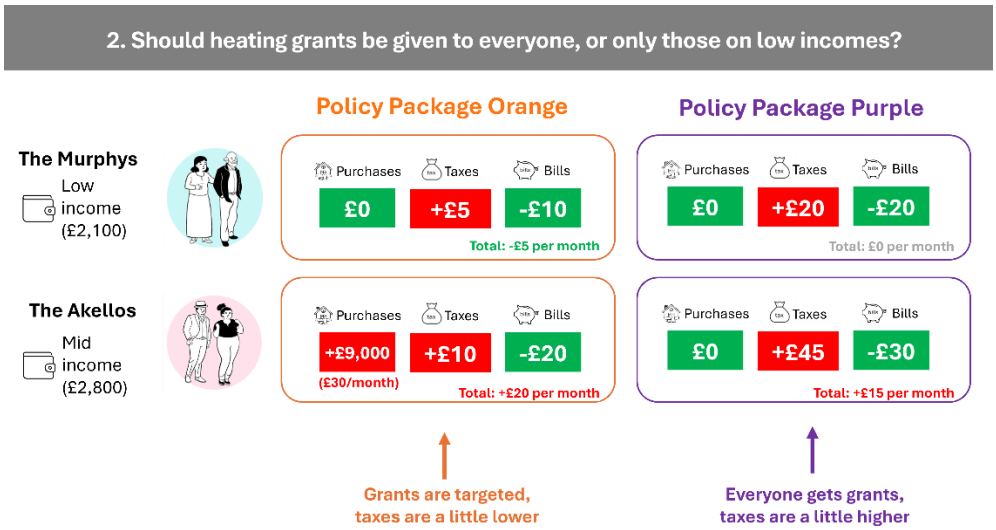
This was a key difference between the two policy packages participants were presented with (see **Section 4.1 CCC distributional impacts model**) – Policy Package Purple provided grants for heat pumps and home insulation for all households, whereas Policy Package Orange provided grants only for those on low incomes.

Overall, there was a consensus that grants should be offered to most, if not all, households. Participants felt that this may encourage faster uptake of heat pumps and accommodate the principle of 'fairness' in the shared responsibility for reaching Net Zero (see **Chapter 7 Cross-cutting findings**). Most participants preferred a system of tapered grants, wherein those on lower-incomes benefitted proportionally more than those on higher-incomes.

> "I'd be in favour of some kind of tapering. It should be linked to income, as it doesn't make sense to be funding people who are high earners the same as others." – Workshop 5

Participants felt it was fairer for grants to be offered to most, if not all, households because everyone pays into the tax system, and they did not think it was fair to 'penalise' those on higher-incomes. They also thought that the shared responsibility for transitioning to low-carbon solutions was important and wanted to see a system that avoids stigmatising or disadvantaging any particular group.

*Figure 4.12: KQ2: Should heating grants be provided to everyone?**



**This slide was shown to participants as a way of providing indicative costs for heat pump grants and cost-savings. The amounts are indicative and reflect monthly costs. Upfront costs are presented as a lump sum in the box but broken down into monthly costs underneath. The income specified is the combined household income after tax per month. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice, they were presented to participants as illustrative.*

Participants consistently noted the households on lower incomes would likely need a greater level of support and should therefore receive a larger amount of financial support than a higher-income household. Participants also recognised the complexities behind a grant with an income-based cut-off. For example, they thought middle-income households may be disadvantaged if grants were limited to an income threshold and noted that often households had other factors defining whether or not they could afford expensive upfront costs. Participants often noted that these households might find themselves ineligible for means-tested support while still facing significant financial pressures.

Generally, a tapered grant was seen as a fairer way to distribute resources and would not cost the taxpayer as much money, with participants likening this to progressive taxation, as a way of ensuring that those on lower incomes benefitted proportionally more, while those who could afford to pay more did so. Some participants thought interest-free loans could be part of this system, to ease the burden on the taxpayer, while at the same time providing support with upfront costs that are not covered by grants.

Despite general agreement, some participants did pose alternative perspectives. For example, some participants thought that tapered grants should also consider individuals' personal circumstances, such as the size of the household (i.e. how many people lived in a certain space) and the size of the home itself. A small number of participants argued that instead of focusing primarily on household income, grants should initially be focused on the housing stock that was most in need of energy efficiency measures.

> "Look at the biggest inefficiencies in households. Just say: 'This housing stock has to be updated'. Landlords may get their properties redeveloped […]. It should be done on a basis of the worst housing stock is brought up to date." – Workshop 4

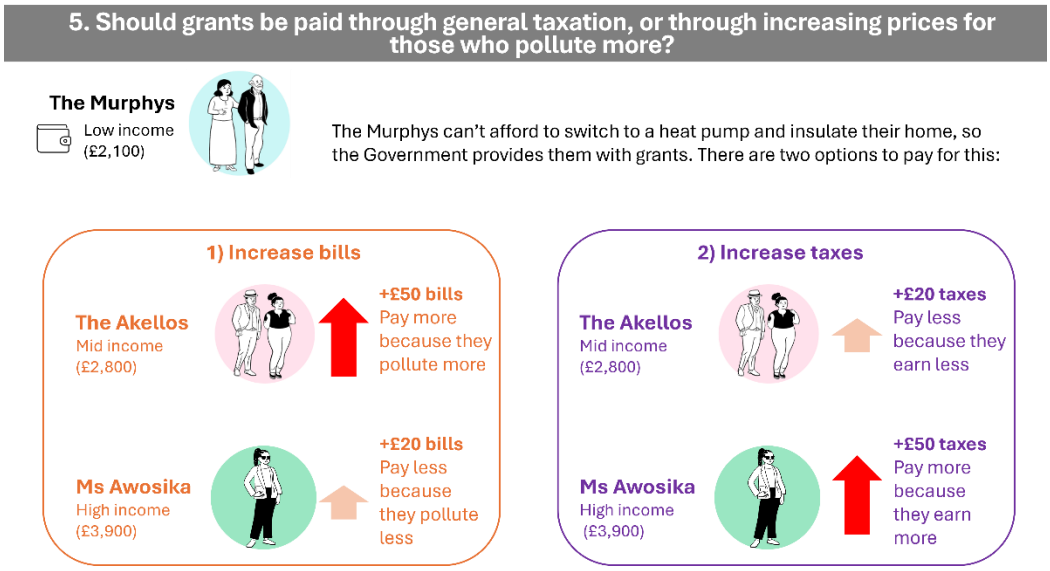
V. Participants were initially undecided on how grants should be paid for but tended to prefer general taxation over funding measures through higher gas bills. They were aware that more universal access to grants put a greater demand on taxes.

Throughout conversations relating to grants, across Workshops 2 and 4 (when these policy levers were being discussed regarding home heating), participants were consistently reminded that the provision of grants would need to be paid for. In these early workshops, prior to being introduced to distributional impacts of different policies, participants largely thought it was acceptable for the costs of grants to be funded through general taxation.

In Workshop 5, this was brought to the fore, with examples of more grants meaning higher taxes and explored through: **KQ5: Should grants be paid for through general taxation or increasing prices for those who pollute more?**

> "It ends up being fair anyway, that way, doesn't it, because the low-income household wouldn't be paying the actual tax, would they? It would just be the higher earners that would be paying a little bit more tax, so it would be fairer, the Purple policy." – Workshop 5

*Figure 4.13: KQ5: Should grants be paid for through general taxation or increasing prices for those who pollute more?**



**This slide was shown to participants as a way of providing indicative costs for heat pump grants and cost-savings. The amounts are indicative and are per month. The income specified is the combined household income after tax per month. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice. They were presented to participants as illustrative.*

Most participants still preferred using general taxation to fund these measures. The sentiment around the pictured tax increases was not inherently positive: participants were often reluctant for increased taxes to occur, but saw it as an acceptable trade-off, although as noted below wanted energy companies to pay a share. Some saw taxation as fairer because everyone would contribute based on their ability to pay. They saw this as potentially the more efficient method, avoiding the need to create and administer a new system.

Despite being willing to accept this trade-off, participants wanted to see the benefit of their additional taxed income. While the benefit participants hoped to see was not fully defined, the overarching

sentiment focused on seeing where taxation was being spent, and faith that added taxes were going towards the greater benefit of households and communities.

> "If people knew their taxes were going to the right things, they'd be much more willing to pay a little bit more." – Workshop 7

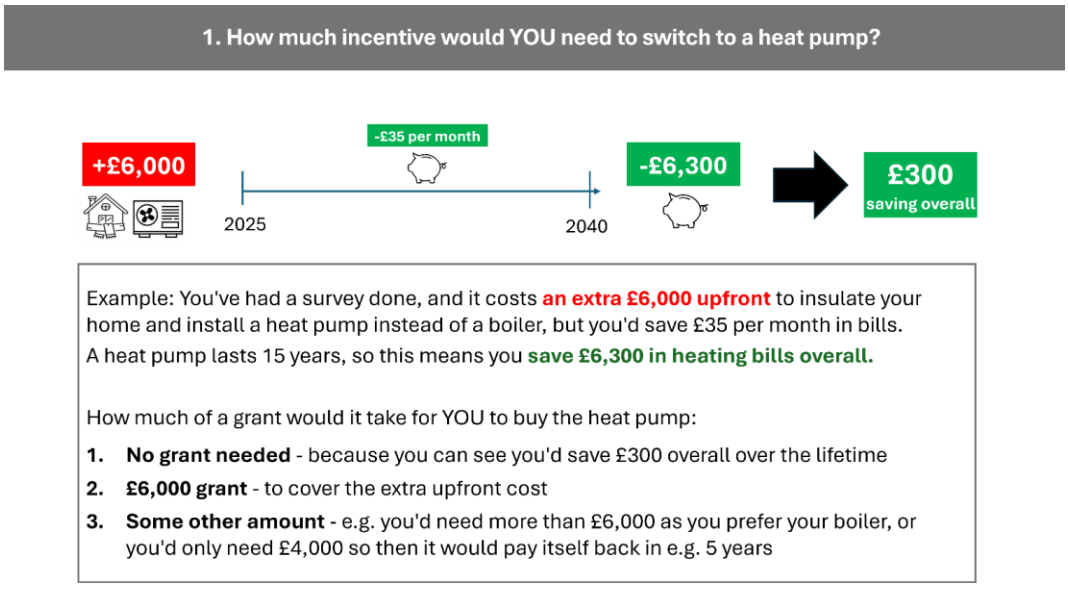
An alternative view was that increasing prices for polluting activities (by putting taxes on gas, which would increase the cost of gas) would also be an acceptable way to pay for grants, although this was expressed less frequently. Some who held this view thought that increasing prices for gas may encourage people to reduce energy consumption in their homes. Participants noted that as gas is finite, it may be acceptable to ask people to 'do their bit' as their responsibility. However, others were concerned that increasing the gas price for those who pollute more may be regressive, and disproportionately impact lower-income households who are less able to purchase a heat pump or install energy efficiency measures early.

VI. Participants thought grants should offset the additional cost of a heat pump and the cost of home insulation as far as possible, with a payback period of 3-5 years, prioritising affording upfront costs over longer-term running cost-savings.

Before Workshop 5 (when participants were introduced to distributional impacts of different policy levers), participants did not spend a lot of time deliberating how much a grant should be, but they did highlight that for a grant to be effective, it should at least cover the excess cost of a heat pump when compared to a gas boiler. Similarly, for home efficiency improvements, participants expressed strong concerns about the affordability of changes and their scale, particularly if they said they lived in old or draughty homes.

In Workshop 5, participants were asked **KQ1: How much incentive would you need to switch to a heat pump?**

*Figure 4.14: KQ1: How much incentive would you need to switch to a heat pump?**



**This slide was shown to participants as a way of providing indicative costs for heat pump grants and cost-savings. The amounts are indicative. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice, they were presented to participants as illustrative.*

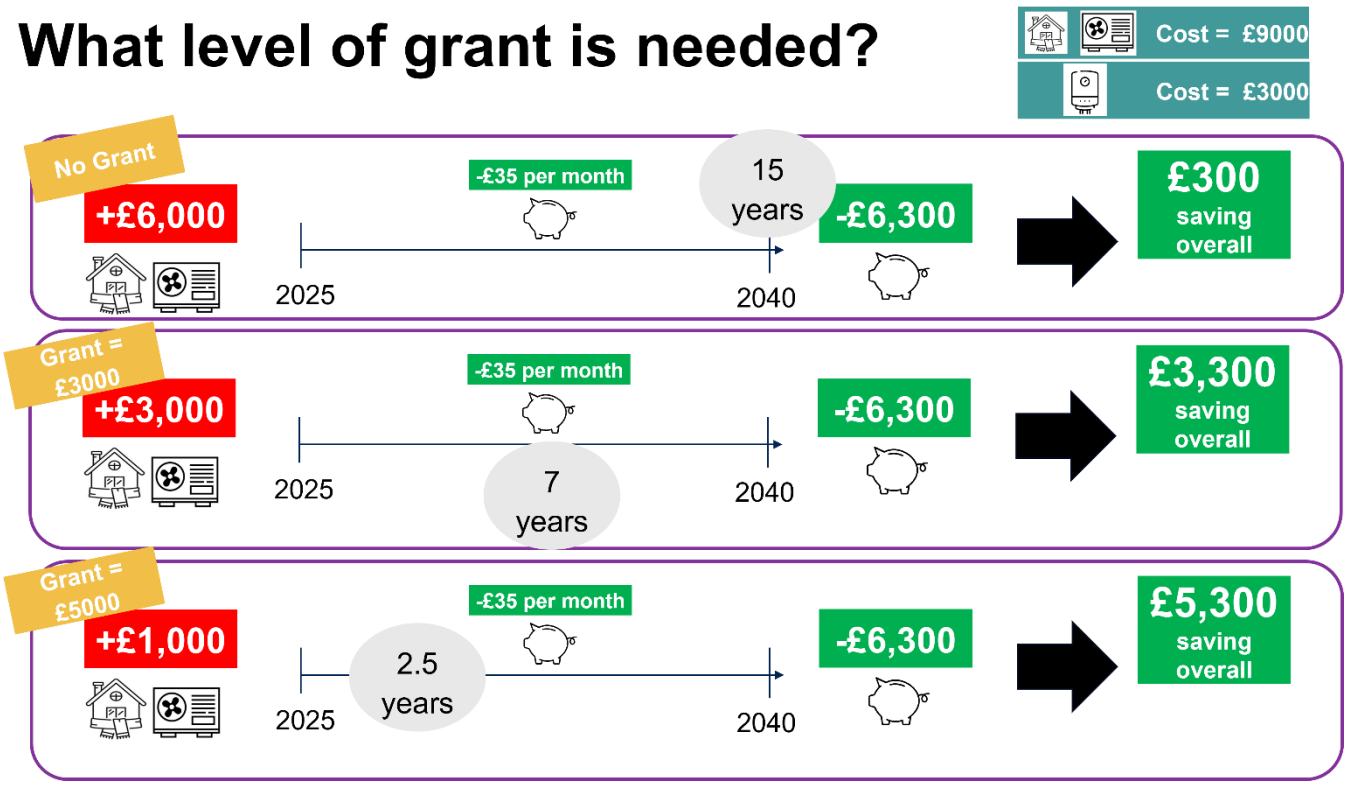
Participants wanted upfront financial assistance to offset higher upfront costs of heat pumps, covering a substantial portion, if not all, of the cost difference compared to a new boiler. However, as in earlier workshops, the idea of a fixed grant amount for everyone was met with reservations. Participants recognised that income, individual circumstances, such as being a renter or a homeowner, and housing types, such as flats or detached houses, could impact both installation costs and potential savings.

A consistent theme in Workshop 5, and later in Workshop 7 when this question was explored in more detail, was the importance of grants being enough to provide tangible, short-term benefits that would motivate households to make the switch. Participants thought the upfront costs posed the largest barrier, and were willing to accept the trade-off that this would need to be paid for in the long-term via general taxation.

> "If it was cheaper or there was an incentive 6 years ago when I got a boiler, it would have encouraged me to put a heat pump in." – Workshop 5

In Workshop 7, participants were prompted to think more deeply about what approximate level of grant they would need to switch to a heat pump: **FQ3: What level of grant is needed?** (see **Figure 4.15** below).

*Figure 4.15: FQ3: What level of grant is needed?**



**The red text on the left shows the amount of money a household would be paying for a heat pump as a lump sum, on top of the cost of a standard boiler. In the first example the cost of a heat pump and insulation is £6,000 more than the cost of a boiler, so if a boiler costs £3,000 then the total cost for heat pump and insulation would be £9,000. The amounts shown are indicative. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice.*

> "I think you'd get more people to switch quicker the bigger the grant." – Workshop 7

Participants generally felt that larger grants would be more appealing due to their immediate impact. They thought that savings distributed over a longer period were less likely to be seen as significant,

highlighting a preference for upfront support when encouraging the adoption of energy efficient technologies.

> "A lot of people now get a fixed mortgage for 2 years, 3 years, 5 years. You could think about those timescales [to benefit] because for a lot of people that's how you get out of it, but people tend to think in 2, 3, 5 years. 7 years, 15 years, that's a long way to predict." – Workshop 7

Generally, participants felt a grant would need a pay-back period of 3-5 years, although acknowledged that this pay-back period would depend on the level of tapered grant a household received. Participants were also aware of different household circumstances and savings levels. They saw £1,000 as a more realistic figure for people to have upfront to contribute towards the cost of a heat pump. Participants said that any required amount higher than that would act as a deterrent for people to switch to heat pumps.

VII. Participants also discussed non-financial barriers, like disruption, reliability, and trust in the technology and installation.

When discussing sufficient grant levels, the anticipated disruption associated with installing a heat pump emerged as a major factor. Participants worried about the practicalities of insulation upgrades, potential damage to their homes, and the overall inconvenience. They also highlighted the need for clear communication and support throughout the process to mitigate these anxieties.

Concerns about the reliability of heat pumps and the availability of qualified installers were also prevalent. Participants sought reassurance in the form of warranties, positive testimonials, and greater media coverage showcasing successful installations. Their overall feeling was that accessible and trustworthy sources of information could address knowledge gaps and dispel misconceptions.

> "Giving more real-life situations and case studies where heat pumps are working, and what genuine opinions there are." – Workshop 4

VIII. Participants thought making electricity cheaper was an important step, though insufficient without financial support for upfront costs of a heat pump.

In Workshops 4 and 5, when participants were introduced to policy levers and policy packages, participants were generally supportive of making electricity cheaper, seeing it as a necessary part of any policy package.

> "I think making electricity cheaper is a positive, and it's a good one because it's not requiring us to spend more money. It's more attractive as a prospect." – Workshop 4

Participants thought that making electricity cheaper may incentivise households to switch to electric cars and heat pumps so they use more electricity than gas.[20]

However, participants did not think that making electricity cheaper alone would make enough of a difference in household's bills to encourage the uptake of heat pumps and energy efficiency measures. In line with wider cross-cutting themes, this highlights again that, for home heating, participants thought

[20] The policy lever in question referred to reducing the price of electricity for households, by reducing or removing the levies (policy costs) that are currently placed on electricity. The panel was introduced to two ways of achieving this: placing these levies on gas (which would increase gas bills for households) or by shifting these levies onto general taxation (which would increase the amount of tax households pay, proportionate to their income).

the primary challenge was the upfront cost of installing home heating measures, and did not think that the promise of lower bills would be sufficient for many households to be able to take on those costs.

IX. Participants were uncertain on whether it was fair for the cost of gas to increase, concerned this would lead to negative impacts for those less able to make home heating household choices early.

When thinking about increasing gas prices in isolation, some participants saw doing so as a helpful disincentive, potentially encouraging households to transition away from gas-based heating systems, particularly when paired with making electricity cheaper.

> "If you've got to get a new form of heating system, you're going to go for the one that costs less. If you're going to need a new one anyway, the ones they want you to have, you just make them cheaper, don't you?" – Workshop 4

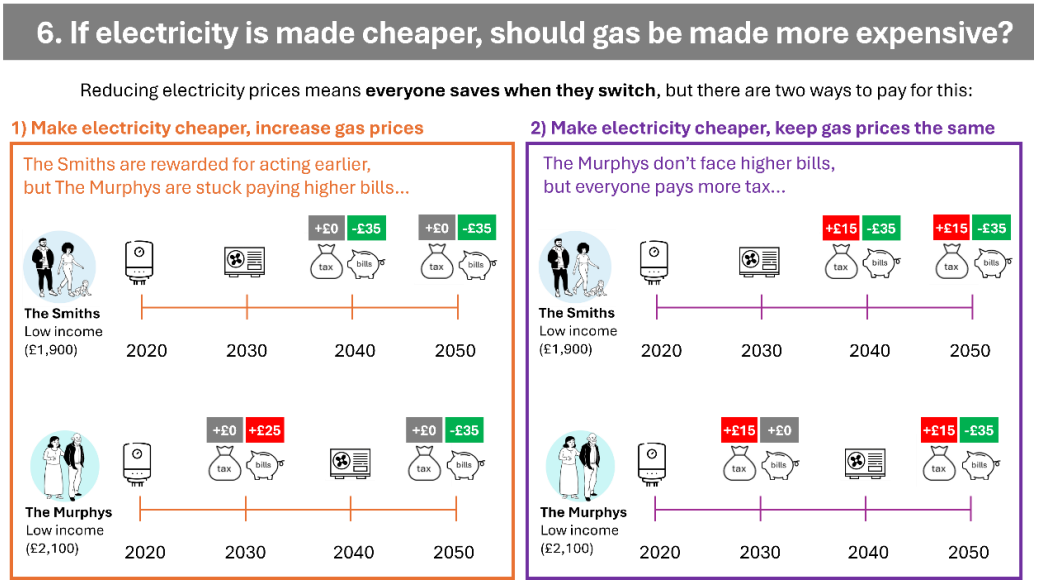
Others, however, were apprehensive. Participants were worried that increasing the cost of gas may disproportionately penalise those who rely heavily on it and may not be able to immediately switch to electricity-based alternatives. Some recognised they had internal biases around this issue, thinking of their own situations and noting that it would be something they would find challenging to do – for example, because they had a gas hob.

Participants were concerned that making gas more expensive would mean that those who could not afford to transition early (i.e. those on lower or even medium incomes), or who were unable to do so (for example, because they were private or social renters) would need to pay higher bills for longer. This relates to the cross-cutting theme that it is unfair that those who were unable to make changes might be 'penalised' for this. Participants most often referred to this in terms of families on low income, and, when thinking about home heating, renters.

X. There were different views on how making electricity cheaper should be funded, but generally there was a preference for it to largely be funded through general taxation with a small increase on gas bills, that was gradual and took place once heat pumps were affordable.

While participants were apprehensive about increasing the price of gas, they were asked to grapple with whether it would be acceptable for gas becoming more expensive in order to pay for electricity prices decreasing. In Workshop 5, participants were asked: **KQ6: If electricity is made cheaper, should gas be more expensive?**

*Figure 4.16: KQ6: If electricity is made cheaper, should gas be more expensive?**



**This slide was shown to participants as a way of providing indicative savings and costs if electricity became cheaper, and if gas did (or did not) became more expensive. The amounts are indicative and are monthly savings/costs. The income specified is the combined household income after tax per month. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice. They were presented to participants as illustrative.*

In Workshop 5 (when introduced to distributional impacts of different policies – see **Figure 4.16**) participants did not conclude how making electricity cheaper should be paid for. In Workshop 7, when participants were prompted to consider this in more detail, they remained fairly split on whether increasing gas prices to pay for cheaper electricity would be acceptable.

Some participants thought that increasing gas prices would act as a strong motivator for households to transition away from gas-based heating systems towards more sustainable alternatives like heat pumps. For some participants, gas was a finite resource and should be priced as such.

> "I just feel like that's the only way there's going to be any change in this […]. At the end of the day, it needs to be precious. It should be at a precious price." – Workshop 7

Other participants were hesitant to implement moving taxes from electricity to gas in one go. They thought that increasing gas prices rapidly and significantly would disproportionately penalise those who rely heavily on gas and may not have the immediate means to switch to electricity-based alternatives.

> "I'm just on the fence. I don't know what my alternative would be. If we're striving to a goal of 2050 anyway, it's going to build throughout, why should people be penalised [with higher gas prices] in that grace period of getting to that?" – Workshop 7

In the final workshop, when asked **FQ1: Some people preferred putting costs onto gas bills and some onto general taxes. Which do you prefer? What about a combination?**, participants largely landed on wanting costs to be funded mostly through general taxation, but with small increases on gas bills.

> "[Combination] is the only sensible option that works […]. It has to be fairly distributed by a combination of both taxation and increasing gas bills." – Workshop 7

Participants tended to think that any increases in gas bills should be gradual, and take place once heat pumps were affordable, so that those on lower incomes or otherwise unable to switch to a heat pump earlier on, would not struggle to afford to heat their homes.

In voting at the end of the final workshop, half of participants said they supported the policy of paying for the overall policy package through a mix of tax and increasing costs on gas or petrol – the most popular 'paying for it' policy option. The remainder were fairly evenly split on paying for the policy package by either general taxation (5) or costs on gas (4).

XI. Participants felt energy companies should shoulder some of the additional costs.

Participants' initial reactions also often referred to frustrations and a sense of distrust of private companies and the high profits participants associated with them. In particular, participants were critical that they may need to pay more, while energy companies reported large profits, and given challenges around the cost-of-living crisis.

> "The amount of profits energy companies are making, maybe put more taxes on them to give back to grants to us." – Workshop 3

This theme persisted throughout the remaining workshops when discussing home heating. While in-depth discussions of the role of private companies were out of scope for these workshops, the prevalence of this view contextualises participants' perceptions of fairness in terms of paying for these changes.

> "One thing I really liked about the final policy package was making energy companies contribute to the cost with taxation." – Workshop 7

XII. Participants also envisioned a role for manufacturers of heat pumps and boilers to assist households to transition.

They thought that these companies should bear some of the responsibility for encouraging the shift – for example, through setting minimum numbers every year for them to manufacture heat pumps alongside boilers.

4.3.4 Areas of agreement and disagreement

This section brings together the key areas of agreement and disagreement throughout panel deliberations on home heating, as reported on in this section.

Agreement

While some of the points included in the previous two sections were not unanimous, most perspectives were shared by the majority of participants.

- **The scale of change to households will pose a large challenge:** All participants agreed that the significant changes required for home heating would be challenging. Participants were sometimes daunted by the potential scale of changes they may need to make to their homes (for example, installing energy efficiency measures or changes required to install a heat pump, and their associated disruption). Some were also looking from a wider perspective at the household choices as a whole, noting that households will need to shift to eating less meat and dairy, using EVs, and heat pumps in a relatively short period of time.

- **Phasing out the sale of gas boilers was seen as acceptable, but only if it is paired with help for the upfront costs of heat pumps, such as grants and making electricity cheaper:** Participants generally found the idea of changing the rules to phase-out gas boilers acceptable. However, they emphasised that these rule changes must be accompanied by 'Incentivise' policies to support households financially in making the transition. They believed that without government making the transition to heat pumps cheaper through measures like grants and making electricity less expensive, the rule changes alone would not be feasible or fair.

- **All, or the vast majority of, households should have access to some level of financial support for additional upfront costs:** There was agreement that all households should receive some form of financial support to help with the transition to heat pumps and improved insulation. Participants felt that support should be universal but tiered, providing more assistance to lower-income households.

- **Households unable to choose to transition early to low-carbon heating should not face higher bills as a result:** Participants unanimously agreed that it would be unfair for households that cannot afford to transition to heat pumps to face higher costs as a result. They were concerned that without sufficient financial support, many households would be unable to make the necessary changes and would unfairly suffer from higher costs associated with remaining on traditional heating systems if gas became more expensive. Participants were also concerned that, without protections for renters, many of those living in privately rented accommodation would be unable to transition without a supportive landlord, or may have the costs of low-carbon heating passed down to them.

- **Transparency on where additional taxpayer money is being spent:** Participants wanted transparency in how the additional tax revenue would be used and assurance that it would directly benefit households and communities.

- **Energy companies should shoulder some of the costs:** While not a focus of the deliberations, participants agreed that some of the costs of their policy package, particularly for policies relating to home heating such as grants for heat pumps and insulation, should be paid through increased taxes on energy companies' profit. Participants cited recent record-breaking profits of energy companies as evidence that more needed to be done to ensure they shared responsibility for the Net Zero transition and supported households in doing so.

Disagreement

- **How grants should be paid for:** Participants disagreed on the best way to fund policies that provided financial support to households. Some felt that government-funded grants financed through taxation were the best approach. Others argued that grants should not be entirely government-funded and suggested putting some taxes on gas, or ensuring provision of alternatives like interest-free loans

- **How making electricity cheaper should be paid for:** Participants were divided on the acceptability of making gas more expensive, or if the cost of making electricity cheaper should be put on general taxation. Some believed that increasing costs for polluting behaviours would incentivise people to switch to cleaner options. Others felt that this approach would unfairly penalise those who could not afford to transition, viewing it as punitive rather than encouraging. Ultimately, participants generally agreed that this was only acceptable if it was accompanied by

electricity becoming less expensive. Following deliberation, many participants agreed that this should be mainly paid for through general taxation but saw a role for small, gradual increases in gas bills to pay for some of it as acceptable.

- **Incentivising by making council tax cheaper for energy efficient homes:** One perspective was that this would help encourage households to insulate earlier. Others, however, were more sceptical – first about the feasibility of changing council tax within different bands, and secondly about the sentiment of the policy as a whole.

4.4 Citizens' Policy Package

In Workshop 5, after participant deliberations on all the key questions, the CCC and Ipsos facilitators developed a draft Citizens' Policy Package which was tested with participants, and is outlined in **Table 4.1.** below. This was based on the overall themes of their deliberations across Workshop 4 and the key questions discussed in Workshop 5.

The key finding at this stage was that most participants were landing on a variation of Policy Package Purple. Participants were shown slides with the key elements of agreement and disagreement, indicated in Table 4.1 below. Text is colour-coded by whether it was new additions or amendments from participants to existing Policy Package Purple or Policy Package Orange policies (see **Section 4.1 CCC distributional impacts model**).

Table 4.1: Draft Citizens' Policy Package

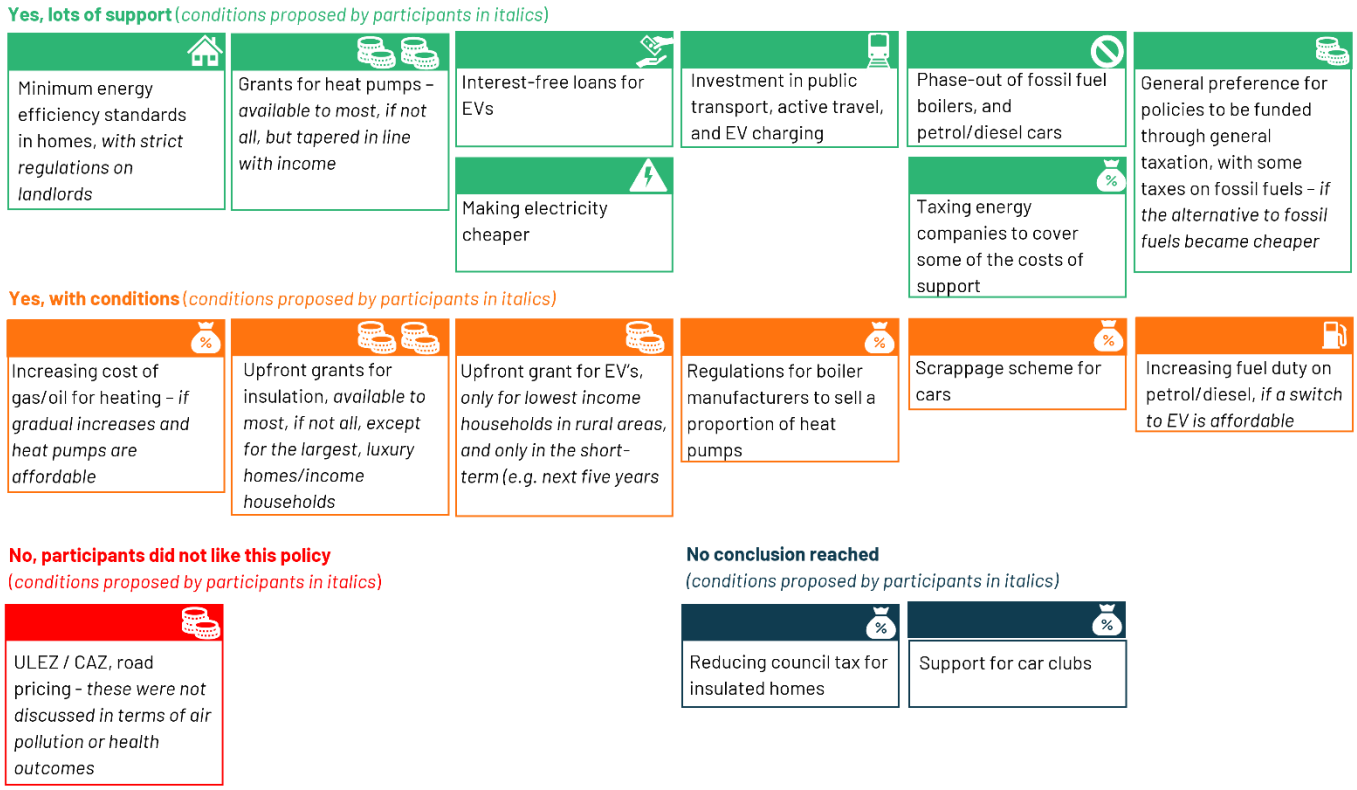
Level of support	Policy (and which policy package they were included in)
Majority support	PURPLE AND ORANGE POLICY: Phase-out dates for boilers and petrol/diesel cars
	PURPLE AND ORANGE POLICY: Making electricity cheaper
	PURPLE POLICY: Minimum standards for energy efficiency in homes– PARTICIPANTS' POLICY: But protecting renters
	PURPLE POLICY: Grants for (almost everyone) for heat pumps and insulation PARTICIPANTS' POLICY: But tapered and needs-based
	PURPLE AND ORANGE POLICY: Support for public infrastructure/public transport
	PARTICIPANTS' POLICY: Energy companies' tax or other contributions
	PARTICIPANTS' POLICY: Interest-free loans
Some support	PARTICIPANTS' POLICY: Grants for electric vehicles too – to cover the difference in costs and tapered
	PURPLE POLICY: Funded by tax ORANGE POLICY: Funded by gas increases PARTICIPANTS' POLICY: Unsure. Maybe a combination – e.g. tax for heating, petrol for driving
	ORANGE POLICY: Require boiler manufacturers to sell proportion of heat pumps
	ORANGE POLICY: Council tax reductions for insulated homes
	PARTICIPANTS' POLICY: Scrappage scheme

	PARTICIPANTS' POLICY: Grants for charging points
	PARTICIPANTS' POLICY: Car clubs
Little to no support	ORANGE POLICY: Increased VED for petrol/diesel cars
	ORANGE POLICY: Grants just for low-income
	ULEZ/CAZ

Final Citizens Policy Package

After this initial policy package was identified, further analysis of the qualitative findings across all the workshops from the panel was conducted, and participants explored follow up questions on further trade-offs. After this an overall 'Citizens Policy Package' was refined and developed by Ipsos researchers and the CCC. This is outlined in **Figure 4.17**.

Figure 4.17: Citizens Policy Package



At the end of the final workshop, participants were asked the extent to which they agreed with the statement that: "*The Citizens' Policy Package for home heating and surface transport would make the changes households need to make to their homes and how they travel accessible and affordable.*" This was referring to the Citizens' Policy Package presented to them at the start of the session (**Table 4.1**), although voting took place after participants had discussed and come to conclusions on some of the key trade-offs involved.

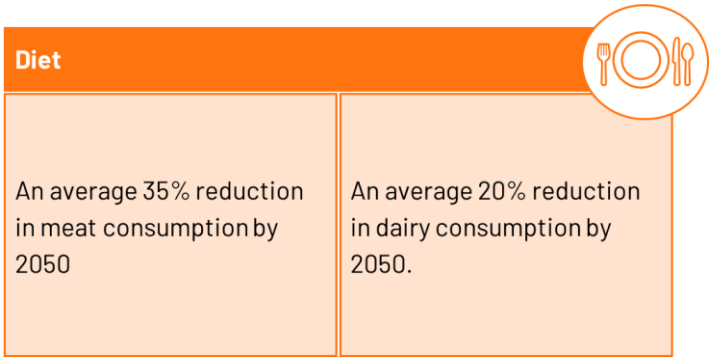
The vast majority of participants (23 out of 26) voted they either strongly or tended to agree with the statement.

5 Diet

What did Workshops 5 and 7 cover?

- The focus was on exploring participants' views on what would make an average reduction in meat and dairy consumption accessible and affordable for all households.

Figure 5.1: Household choices for diet, as presented to participants



- In Workshop 5, Marili Boufounou (CCC), presented on how we use our land will need to change in order for the UK to meet Net Zero, and Dustin Benton (The National Food Strategy and Green Alliance) presented on historic and current trends in UK diets and introduced the panel to alternative proteins. Following Dr. Sandra Bogelein's (CCC) presentation on policies that can help achieve a reduction in meat and dairy consumption, participants discussed a series of 'key questions' to help them assess which policies they felt were the most acceptable and affordable for households.

- In Workshop 7 participants revisited policies discussed in Workshop 5, and through a series of follow-up questions, they pinned down which of the policies they found most acceptable and why.

What did participants say about reducing their meat and dairy consumption?

- Participants were initially surprised by the high contribution food production makes to UK CO_2 emissions.

- Participants had questions around importing vs. exporting goods, both in relation to CO_2 emissions and farmers' livelihoods.

- Participants were generally on board with reducing their meat and dairy consumption; some participants had already adopted more plant-based diets, while others felt that changing their diet would be a relatively easy change to make. However, a few participants considered dietary changes as perhaps less of a priority, compared to other low-carbon household choices (diet was first discussed after surface transport and home heating).

- In some cases, participants reported that their diets have already become more plant-based or had noticed a trend in more people eating less meat and dairy.

- Participants were split on novel alternative proteins when first introduced to them, with some wanting to learn more, and others feeling more comfortable with existing alternative proteins.

- There were some participants who were less optimistic about the likelihood of accepting measures around reducing meat and dairy consumption. They argued that people are unlikely to change their behaviour.

- In some cases, participants were wary about what this would mean for those who may have more inflexible diets due to preferences or health reasons, or for lower-income households and farmers (whose livelihood could be negatively impacted if demand decreased).

What did participants say about policy to support reducing their meat and dairy consumption?

- Participants unanimously supported policies, where through education and raising awareness, the public becomes more informed about dairy and meat alternative choices, and associated health and environmental benefits.

    - Participant suggestions included campaigns similar to five-a-day, or recipe cards providing information on how to cook plant-based meals at home.

- Participants generally supported policies that did not require a substantial shift in lifestyle. For example, they felt that replacing a proportion of meat with non-meat ingredients in ready meals would not lead to a noticeable difference in taste, and therefore was an acceptable option. Making changes in supermarkets and restaurant menus and making low-carbon alternatives such as plant-based foods cheaper were widely supported policies.

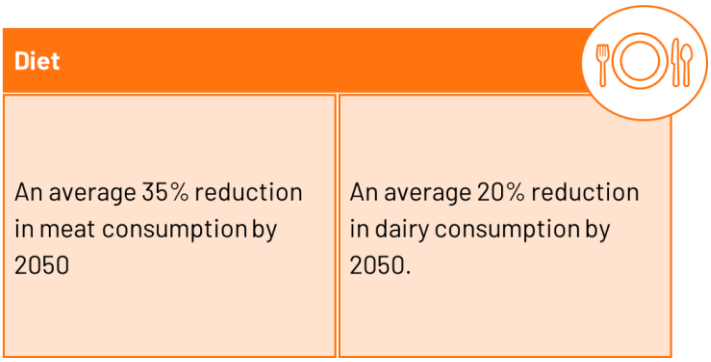
- While some participants were sceptical of more novel alternative proteins that utilised technologies like precision fermentation and cultivated protein, and their potential long-term health impacts, they still supported government funding their development to enable a wider variety of non-meat/dairy options.

- Some participants were open to policies that would adjust relative prices of meat and dairy products and alternative proteins. This, however, was contingent on revenues generated being reinvested to further reduce the cost of plant-based alternatives, and with the caveat that lower-income households would be financially supported so that they would be able to afford alternative-meat and dairy products.

5.1 Introduction

Chapter 2 highlighted the household choices for all the policy areas that would likely need to happen in tandem to reach Net Zero by 2050. The household choices for diet were:

Figure 5.2: Diet household choices required to meet Net Zero



This chapter follows a different structure to the preceding chapters, for the purpose of accurately reflecting the information participants were presented with, and the key points around which the discussion revolved. Findings in this chapter are divided into the five different types of levers government can use to encourage an average shift away from meat and dairy consumption:

Figure 5.3: Policy levers suggested to participants for diet

Information	Changes in supermarkets and when eating out	Changes to portion sizes	Alternative proteins	Changes to how much different foods cost
Information e.g., environmental food labels, informational campaigns, and advertising / promoting.	**Changes in supermarkets** e.g., greater availability of meat and dairy-free products, increase exposure through display, and promote them better. **Changes of defaults on menu** e.g., including more meat and dairy-free options in restaurants and schools.	Changes to the **amount** of meat and dairy in e.g., ready meals. Changes to meat **portion sizes** in restaurants. Make **smaller meat portions** available.	**More research and development** into meat and dairy alternatives. **Subsidising** alternative proteins / new meat and dairy alternatives.	**Subsidising** meat-free and dairy-free food. **Reducing** meat and dairy subsidies.

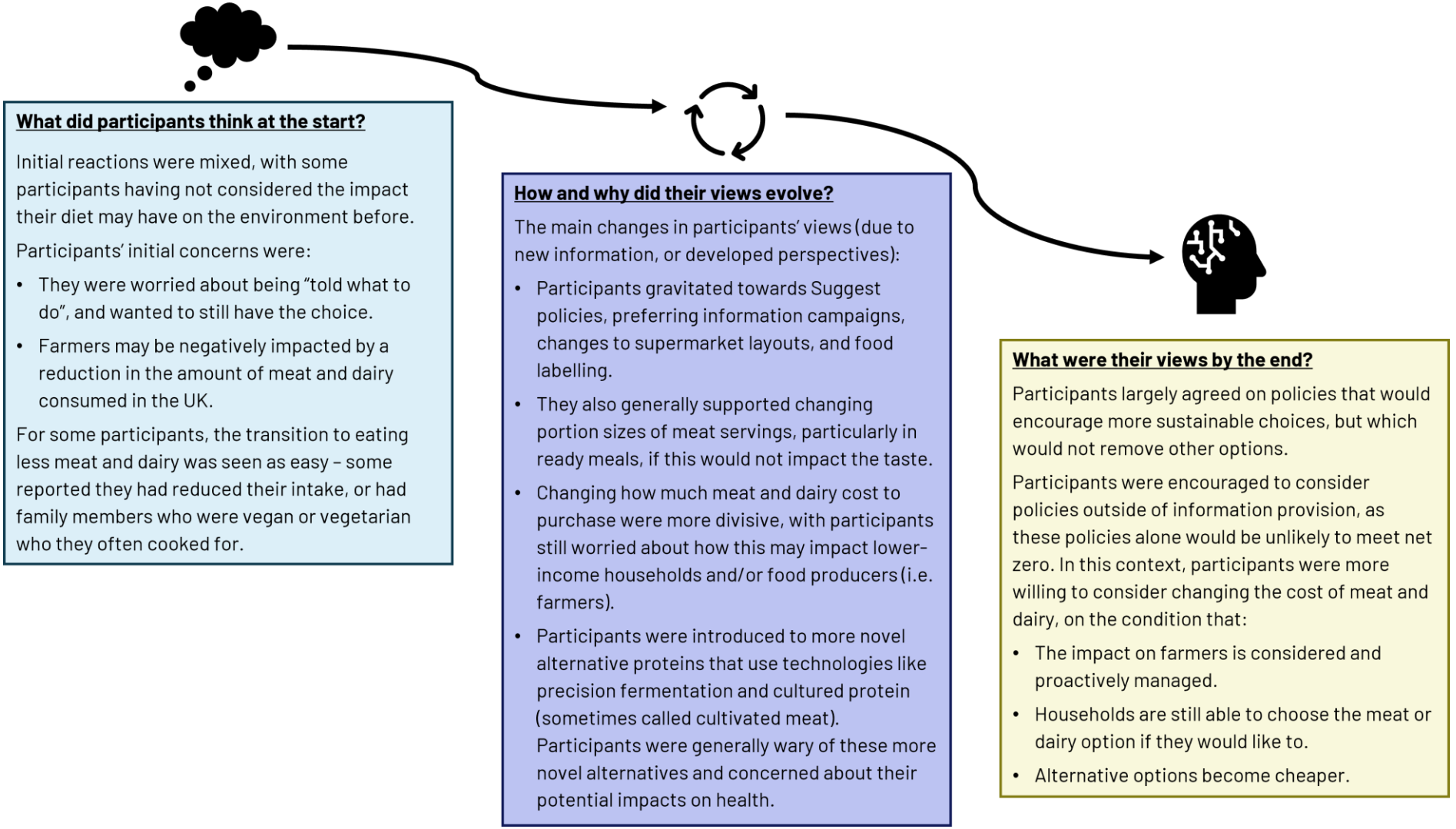
These policies were presented to participants as illustrative examples, and not as policy advice from the CCC.

5.2 Participant perspectives on diet

5.2.1 Participant journey

The following figure shows how participants' views evolved throughout the workshops.

Figure 5.4: Participant journey for diet (Workshops 2, 5 and 7)



Initial reactions to household choices for diet

After hearing about food industry emissions, but before hearing about policies that could support a shift away from meat and dairy consumption, participants were asked what they thought about the presentations. They were then encouraged to think about the dietary changes that were needed to reach Net Zero.

I. Initial view: Participants were surprised at the emissions impact of food production and had questions about its significance in the wider emissions context.

Participants' initial reactions to the ways in which our diets need to change to meet Net Zero were mixed, with most being less aware of this sector's emissions impact compared to other sectors that were discussed. Initially surprised by the significant contribution this sector makes to UK CO_2 emissions, participants expressed a strong desire for more information on the topic. Some felt diet was less of a priority than other issues that were discussed in workshops. For a few participants, this was because they saw diet as a more achievable change for people to make, particularly when compared with more structural changes, such as the transition to heat pumps.[21] Nevertheless, participants were interested in understanding how altering their diet could contribute to environmental goals.

II. Initial view: Participants were keen to support local produce, and to avoid a decrease in UK-produced livestock leading to an increase in imports of meat and dairy.

Participants were interested in reducing the country's carbon footprint from imported meat and dairy as well as meat and dairy from the UK. They were keen that if local meat and dairy produce decreased, this was not simply replaced with imported meat and dairy. Participants came to this conclusion unprompted, and before they learnt about policies that can support a shift away from meat and dairy consumption.

> "[It's] shocking that we get lamb from New Zealand imported when we are a net exporter of dairy." – Workshop 5

III. Initial view: Participants accepted the need to reduce meat/dairy consumption, provided that there would be positive impacts on health.

Overall, participants supported changing their diet to contribute to Net Zero. They emphasised that such changes should not only be made to benefit the environment but could also have a positive impact on their health. Others wanted reassurance on this point, that shifting diets would not have negative impacts on peoples' health or how the shift can be done in a healthy way. Several participants also reported they were open to trying alternative meat and dairy products, as long as these products tasted good, and would not be harmful to one's health.

[21] Diet was discussed in Workshop 5, directly following discussions on surface transport and home heating.

IV. Initial views: Some participants reported their diets have already become more plant-based or had noticed a trend in more people eating less meat and dairy.

Some participants noted that they already felt they ate less meat and/or dairy than most people or had recently reduced how much they consumed from what they ate before (for example, one participant said they only ate meat when they went out to eat) or had started trying (and liking) plant-based products such as plant-based milk.

> "We don't have dairy milk in my house, I made my mum a cup of tea with soya milk, and she didn't notice." – Workshop 2

Others had noticed that social norms and many peoples' diets have already started shifting towards more plant-based food. For instance, several participants had noticed more meat and dairy-free products exhibited in supermarkets, and more meat-alternative options in restaurant menus. Another highlighted that their child's school did 'meat-free Mondays'.

V. Initial views: Some participants were keen to find out more about novel alternative proteins, whilst others felt more comfortable with existing alternative proteins.

Participants were introduced to novel alternative proteins, such as those derived from precision fermentation processes. While these innovative options sparked curiosity, most participants found themselves more comfortable with existing alternative proteins, like plant-based milks, burgers or sausages that are already available, which they had already integrated into their diets.

> "Things already exist on the shelf and are tested with the population so it's a known technology. The others [*precision fermentation and cultivation*] are speculative technologies. This is one we know works and is a valid way forward." – Workshop 7

VI. Initial view: Despite large acceptance of changing diets, some participants were less optimistic about the public accepting to reduce their meat consumption.

In initial discussions, prior to learning about different policy levers that may be used, some participants were more unsure about whether they or the general public would reduce meat and dairy consumption consistently. While some participants felt that growing awareness of climate change may act as a catalyst to changing ingrained purchasing habits, others argued that some people (including themselves) are unlikely to change their behaviour, even if there are benefits. Examples participants gave included simply not wanting to (due to taste or preference), a lack of knowledge about plant-based alternatives and, in some cases, people having inflexible diets or particular nutritional needs.

5.2.2 Policy levers

Information campaigns and food labelling

Participants were, generally, very positive about using information campaigns as a way of encouraging households to reduce their meat and dairy in-take, even when informed that this kind of policy lever alone is unlikely to result in significant levels of change. The below sub-section outlines participants' views on what they thought information campaigns and/or food labels should cover, and how they could be implemented.

I. Participants believed providing information was vitally important, even though they understood that information on its own may not be sufficient as a policy lever.

Participants, particularly in earlier workshops, often focused on changing dietary choices through information provision, even when they were reminded that this policy lever alone was unlikely to result in the necessary household choices to meet Net Zero. For example, participants thought information campaigns on the impact diets can have on the environment should be used. Participants consistently thought that information provision was an important cornerstone, at least providing people with the tools to change, the knowledge of how to do so, and the understanding of why it was important.

II. Participants thought it was important for messaging to be balanced, and said that information on co-benefits of dietary change may be convincing.

Participants expressed a strong desire for balanced information in campaigns so the public can come to an informed decision. They highlighted that it was important to discuss potential positive and negative health impacts, how plant-based products are made (for example, production of plant-based meat alternatives), and the positive environmental impacts of reducing meat and dairy consumption.

Alongside this, participants discussed what form of messaging would be most convincing: for the most part participants thought emphasising co-benefits of reducing meat and dairy consumption (particularly potential health benefits) would be more convincing than focusing on climate change. For example, some suggested providing information on the potential risks of high meat consumption. Others felt that positive messages around changes in diet – for example, promoting fish over meat – would be more appealing than discouraging consumers through negative messaging. Relatedly, participants had diverging views on whether it would be effective for information to be provided on what they perceived as negative aspects of meat production.

III. Participants said it was important to provide more information on the benefits and risks around reducing meat and dairy intake.

Participants unanimously agreed that information dissemination around the benefits and risks of meat and dairy consumption, as well as on more widely adopting a mostly vegetarian (or vegan) diet should be improved. It is worth noting that adopting vegetarian/vegan diets was not proposed by the CCC as a household choice (the requirement is for a 35% reduction in average meat consumption and a 20% reduction in average dairy consumption) – it was participants who drew this parallel. Most participants primarily emphasised the health benefits of reducing meat consumption, while fewer noted the environmental impacts of meat production. Participants felt that wider guidance and direction is needed on what to do, and what alternatives to meat and dairy are available. For those who were informed about alternative proteins and who had already tried them, learning about meat and dairy-free products was a key factor in encouraging them to try them.

> "You know how they did the BBC food guide for food. Then the Government should have one as well." – Workshop 2

IV. Participants had a range of specific ideas and suggestions for how information could be communicated to households.

In response to the wider lack of knowledge around how the food industry contributes to UK emissions, participants made the following suggestions for increasing awareness:

- Some participants were supportive of proactive campaigns, focusing on education and providing recipes for plant-based meals (rather than negative messaging on meat/dairy). While participants were not always clear on where this information may come from, a few suggested these could be led by supermarkets or an information campaign led by government. This could also include promoting initiatives like 'Meat-free Mondays'.[22] Participants generally believed that if people knew how to cook plant-based meals, they would be more likely to feel able to reduce their meat consumption.

"People think we don't eat enough protein, the reality is we're getting loads, loads more than we need, so maybe we need a campaign about how much we need, but also where we can get alternatives from." – Workshop 7

- Some participants noted that awareness around sustainable and healthy diets should begin with school education, believing that incorporating practical experiences like cooking classes into the curriculum could be instrumental in shaping diet habits. Information (particularly for younger people), therefore, was seen as key. Some participants made a similar point regarding alternative proteins, noting that once they received comprehensive information about meat alternatives, they were keener to try them.

"Educate and do some classes in school as that's what it comes down to, education. Perhaps as kids grow up by that time, they will move off meat." – Workshop 7

- Participants supported adding information to food labels, suggesting a rating system or information on the emissions generated through making different food products. However, participants did not go into details on what this could look like or how to best communicate to the general public about this.

V. Participants highlighted the importance of trusted messengers, such as government and non-profits.

Participants felt that information disseminated by either the Government, non-profit, or trusted organisations or individuals (for example, celebrities the public generally trusts or likes such as David Attenborough) would have a greater impact than information distributed by private companies. Further, partnerships between the Government and supermarkets could also help reach consumers; supermarkets could disseminate appropriate information to customers through their loyalty cards, for example.

"Maybe an organisation we really respect. And not necessarily a profit-making organisation." – Workshop 2

[22] Meat-free Mondays refer to a campaign built to encourage people to not eat meat on Mondays, in order to help improve their health and the environmental impact of meat consumption. More information can be found here.

VI. Participants suggested using TV, social media and influencers to reach specific audiences.

Participants suggested influencers (e.g. on TikTok - as such platforms can also target specific populations) and celebrities could discuss their experiences with vegan/vegetarian diets and perceived associated benefits to reach especially young people. Likewise, TV programmes and documentaries could be used to educate the public on the health and environmental benefits of reduced meat consumption and plant-based meals. However, in order for these to reach an adequate audience, they would need to be on at a time when people are most likely to be watching TV (as opposed to very late at night).

> "You could use TikTok and Instagram, I know my missus is always on there. You could use an influencer campaign." – Workshop 5

Changes in portion sizes

I. Participants supported replacing a small proportion of meat (e.g. 15%) in pre-prepared meals with vegetables or alternative proteins

Another policy lever with high levels of support was changing portion sizes i.e. replacing a small amount of meat (e.g. 15%) in pre-prepared meals with vegetables or alternative proteins. Participants supported this policy primarily because they thought that substituting a small proportion of meat with vegetables or alternative proteins would not make a noticeable difference in taste in ready meals, whilst doing so could also make the meal both healthier and cheaper. This change was seen as an action that could be taken with immediate results, partly because several ready meals (such as lasagna) already contain multiple ingredients, therefore reducing the amount of meat should be easy. Some participants thought that while reducing the portion of meat in meals is unlikely to have a significant impact for customers, it should be nonetheless mentioned on the packaging.

> "I'm leaning towards the strategy of reduced portion sizes, I think no one would actually really notice that and it would achieve it without having a fight." – Workshop 7

When looking at both supermarkets and restaurants, participants tended to prefer changes to meat portion sizes to be implemented in supermarkets (such as in ready meals) rather than in restaurants, as dining out was considered a 'treat,' and therefore, people may be less likely to accept such changes in that setting.

Changes in supermarkets and when eating out

I. Participants were generally supportive of rules on supermarkets or food retailers that increased the availability and visibility of alternatives to meat and dairy.

Participants thought it was important for plant-based alternatives to meat to be more visible and accessible in supermarkets, and generally supported regulations mandating supermarkets to place plant-based options next to their meat counterparts to help with this. They also felt the accessibility of plant-based foods could be improved by ensuring they are available in all retail environments.

Similarly, participants believed that meat consumption could be reduced by imposing stricter regulations on the nutritional content of fast food in restaurants, with a focus on increasing plant-based options. This would be more appropriate for large organisations (for example, schools), where legislation can be used to mandate greater availability of plant-based options.

"Changing legislations so that schools have to provide vegan or vegetarian meals or make them free for example." – Workshop 2

II. **However, some participants were concerned about whether supermarkets making plant-based alternatives more visible would result in changes to how people eat.**

Some participants were sceptical that supermarkets creating increased visibility or opportunities for consumers to purchase plant-based alternatives would result in significant changes in behaviours. Some raised concerns that supermarkets may be reluctant to do this – for example, if this meant they needed to stock up on food that may not be purchased.

Support for new meat and dairy alternatives, including more novel alternative proteins

I. **Participants were open to reducing meat consumption but expressed mixed reactions and scepticism about substituting meat with novel alternative proteins.**

When introduced to alternative proteins, reactions were overall mixed, although most were open to trying, or had already tried, existing plant-based alternatives (although had mixed views on how good they tasted).

Participants were more divided on more novel alternative proteins. When discussing research and development around novel proteins, participants were sceptical of substituting meat with more novel alternative proteins. Some were cautious, for example expressing concerns around what implications 'lab-produced' proteins could have on health. A few participants firmly noted they would not purchase novel alternative proteins, which utilise novel technologies such as precision fermentation and cultivated protein.

"You have a lot of lab-based things, but we need evidence behind it that it's not going to be harmful for us in the long run." – Workshop 7

Others were more positive – noting, for example, that social norms may change, and that younger people may be more willing to accept novel proteins.

There was a consensus that people are already struggling with the idea of plant-based alternatives, and that this was exacerbated by proposing novel technologies like precision fermentation and cultivation.

"I'm happy with existing plant-based alternatives. Precision fermentation and cultivating meat is like the next level of science we are not ready for yet." – Workshop 7

Several participants expressed doubt that it would ultimately be cost-efficient to have a large-scale production of proteins in labs, noting that we can still acquire the proteins we need from other food sources, and queried why this approach would be preferable over a plant-based diet.

"You can get protein from all sorts of sources…anything to do with labs would worry me." – Workshop 5

Following deliberation, participants generally agreed that if alternative proteins tasted good, then the public were more likely to accept them.

II. **Participants supported government funding for novel alternative proteins, despite not favouring them for their personal consumption.**

Despite general scepticism, some participants believed it would be appropriate to offer options for those interested in trying novel alternative proteins. The same participants were open to, and supported, experimenting with food sources before dismissing more novel alternative proteins, particularly if this meant alternatives would taste good or at least the same or similar to the meat counterpart. This was based on their prior experience of switching to alternative milks (e.g. soya or oat milk), which made them more receptive to other alternative proteins. Following deliberation, there was consensus amongst participants that development in novel alternative proteins should be at least in-part funded by government to increase the variety of tasty meat and dairy alternatives available to the consumers. Participants supported government funding for alternative proteins, even when they did not want to consume these products themselves.

At the end of the final workshop, participants voted on this statement: *"It is acceptable for the government to support innovation and sales of alternative proteins."*

The majority (18 out of 26) agreed with this statement.

**5 participants did not vote.*

Changes to how much different foods cost

I. **Participants felt that alternatives to meat and dairy should be similarly priced or cheaper than meat/dairy products.**

While participants emphasised the importance of health, taste, and the availability of choice in encouraging households to consume less meat and dairy, they emphasised that affordability was also key. Participants' initial reaction to changing the relative cost of food was that the Government should subsidise fruit and vegetables, as well as lower the cost of alternative proteins in order to make them more affordable and accessible to the public. Participants maintained this view even after specialists highlighted that various protein-rich whole foods are currently cheaper than meat.

Participants also suggested offering low-income households vouchers for plant-based food, fruits and vegetables, or implementing discount programs for healthy foods similar to the "3 for 2" offers on chocolates, but for nutritious foods.

"If vegetarian or vegan options are cheaper, I am more likely to go for them." – Workshop 2

II. **Some participants were supportive of red meat becoming more expensive, but others had concerns, including about the impact on lower-income households.**

A few participants felt that taxes should be used to steer preferences towards alternatives. They felt that revenue from taxes on red meat could be used to subsidise plant-based foods. The same participants believed that those who consume more environmentally damaging products (such as red meat) should pay more in taxes to offset the environmental costs (referring to paying additional VAT or similar costs on products they purchase). Nevertheless, a few participants felt that increasing the cost of a product may not appeal as much as an emotional trigger to result in changed habits.

While participants were uncomfortable with the idea that an increase in the price of meat would impact what lower-income households could afford, they still felt that this was a better option than subsidies for alternatives being covered by general taxation. They supported making meat more expensive only if vouchers were given to lower-income households to maintain affordability.

III. Participants felt that farmers' livelihoods should be protected if demand for meat and dairy dropped.

In addition to ensuring that lower-income households are not disadvantaged, participants wanted farmers to also be protected. Participants felt that farmers are already struggling - if their production was to drop as a result of reduced demand, participants were worried they would be significantly impacted. As such, there was concern about the potential impact of incentivising alternatives on farmers' livelihoods.

To counterbalance this, they suggested the Government should provide financial and educational support for transitioning from livestock farming to plant-based agriculture or other sustainable practices. They felt the Government should also be offering subsidies for practices like growing trees or replanting hedgerows to help farmers diversify and reduce reliance on livestock. They also proposed subsidising other local produce to make it cheaper to produce, and increasing the tax on imported goods, in order to help secure the farmers' livelihood and to reduce the country's carbon footprint from imports.

> "[We can] pay farmers to grow trees, restore peatlands, grow crops more climate resilient. [it is] not about driving anyone out of business." – Workshop 5

Areas of agreement and disagreement

This section brings together the key areas of agreement and disagreement throughout panel deliberations on diet, as reported on in this chapter.

Agreement

- **Importance of information:**
  - **Effective information campaigns.** Participants largely agreed on the need for widespread information campaigns to emphasise the health and environmental benefits of reducing meat consumption and adopting more plant-based diets. They supported diverse information channels, including traditional media, social media campaigns featuring influencers, and clear labelling on food packaging.
  - **Trusted messengers.** Participants believed information from trusted sources like the Government or health organisations would be more impactful than corporate messaging. There was some recognition of the limited impact of information campaigns but broadly participants thought they would be a low-resistance policy to implement and would increase public interest in and acceptance of an average reduction in meat and dairy consumption over time.
- **Role of education.** There was a strong consensus that incorporating education on sustainable and healthy eating into school curriculums would be crucial for long-term dietary shifts. Participants believed early exposure to cooking with vegetables and understanding the impact of food choices would encourage more sustainable habits in future generations.
- Acceptance of reducing **the proportion of meat in e.g. pre-prepared meals.** Participants largely supported the policy of replacing a small proportion of meat in pre-prepared meals with vegetables or alternative proteins, particularly in settings like schools and supermarkets. They perceived this as a less disruptive change that could be implemented quickly, especially if coupled with transparent communication about the rationale and minimal impact on taste.

- **Support for increased availability and visibility of plant-based options.** Participants agreed that supermarkets and restaurants should offer a wider variety of appealing plant-based options and ensure these are prominently displayed alongside meat counterparts. They supported regulations mandating these changes, particularly in institutional settings like schools.

- **Reducing the price of plant-based alternatives to make them more accessible to the public.** Participants felt that if people are to be encouraged to shift to plant-based alternatives, then these alternatives should be made affordable for the public.

- **Support for developing novel alternative proteins.** Despite concerns about health impacts, a commonly held opinion was that the public would be more likely to accept 'lab-grown' products if the taste was good and/or resembled that of meat. This would incentivise people to at least try out novel alternative proteins. Participants supported the notion that governments should support the development of novel alternative proteins to increase the variety of alternatives to meat and dairy products.

Disagreement

- **Appetite for more novel alternative proteins.** Participants expressed mixed views on replacing meat with more novel alternative proteins that use technologies like precision fermentation and cultivated proteins. While some were open to trying and incorporating these options in their diet, others expressed concerns about the potentially negative long-term health effects.
- **Changing the relative cost of meat/dairy and low-carbon alternatives.** The potential of using taxes, and removing or introducing subsidies to incentivise a reduction in meat and dairy consumption, sparked discussion among participants. While some participants supported higher taxes to subsidise fruits, vegetables, and meat alternatives, others raised concerns about lower-income households and the potential for pushback from those resistant to behavioural changes driven by cost.

6 Aviation

What did Workshops 6 and 7 cover?

- Workshop 6 was the first time participants deliberated on aviation policies. The focus was on exploring participants' views on what would make the household choice for aviation accessible and affordable for all households.

Figure 6.1: Aviation household choices required to meet Net Zero

- Rose Armitage (CCC) presented on aviation's climate impact and options for emissions reduction. Dr. Sally Cairns (Sally Cairns & Associates Ltd) discussed patterns of aviation demand. Both presenters were then joined for a Q&A with Harry Armstrong (Civil Aviation Authority) to answer participant questions.
- Tim Johnson (Aviation Environment Federation), Matt Finch (Transport and Environment), and Myles Allen (University of Oxford) presented on policy options, followed by breakout group discussions and Q&A sessions with the presenters.
- The final part of Workshop 6 involved deliberation on policy options, with key questions to understand the panel's views on the policies, their potential impacts on ticket prices and distributional impacts on different types of households.
- Workshop 7 involved a presentation from CCC summarising participant views on aviation policy options, further deliberation of some policies, followed by a voting exercise.

What did participants say about managing future demand for flights?

- Participants were surprised at the percentage of total UK emissions made up from aviation. Some said they assumed it would be higher, whereas others said they thought it would be lower.
- Participants thought the managed increase in UK household demand for flights was reasonable. Some wanted a concurrent managed increase in demand for business flights alongside this.
- While those who flew saw flying as valuable to them, participants generally saw the choice to fly as more optional, or more of a luxury, than home heating, driving, and diet. Within this however, participants raised a distinction between what they considered more luxury flights and those they saw as essential, and wanted most of the reduction in aviation demand to come from luxury flying choices.

What did participants say about policy for managing future demand for flights?

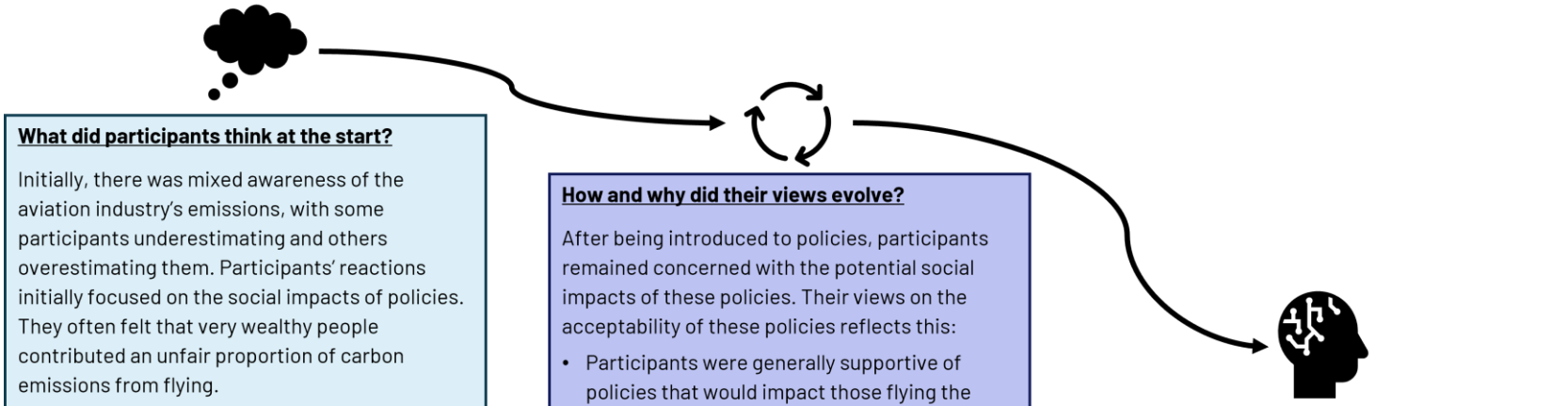
- Participants felt that information campaigns alone would be insufficient to reduce aviation emissions. They widely supported banning airmiles as they considered it an 'easy win'.
- Participants thought the indicated ticket price increases (as a result of policies to reduce aviation emissions) were reasonable and were generally supportive of higher prices as a way to ensure flying is kept to a sustainable level. However, participants expressed concern about implications for lower-income families who travel abroad.
- Participants were initially divided on their preference for a tax based on distance flown or a frequent flyer levy. Through deliberations participants arrived at a combination approach, which would see increased taxes for every subsequent flight (a frequent flyer levy), but the tax increase would be dependent on the length of the flight to reflect higher emissions of longer flights. The exact make-up of the combination policy approach was not agreed. This was partly favoured as it was seen to protect people going on holiday once a year.
- Participants expressed concerns about the viability and potential for relying on carbon removal technologies to be 'against the spirit' of Net Zero. For those who were open to these technologies to offset emissions from flying, almost none were supportive of government funding removal through general taxation. There was also concern about the challenges and governance of airlines being responsible for removals.
- Participants supported limiting airport expansion and capacity, and strongly supported improving railway infrastructure as a viable alternative to short-haul flights.

6.1 Aviation

6.1.1 Participant journey

The following figure shows how participants' views evolved throughout the workshops.

Figure 6.2: Participant journey for aviation (Workshops 2, 5 and 7)



Initial reaction to managing future demand for flying

After hearing about aviation emissions and trends in aviation, but before hearing about policies that could ensure flying is kept to a sustainable level, participants were asked what they thought about the need to manage aviation demand.

I. Initial view: Participants were surprised by the percentage of emissions from the aviation industry.

There was some surprise at the percentage of UK emissions from the aviation industry. Some said they assumed it would be higher, whereas others said they thought it would be lower[23]. For participants who assumed UK aviation emissions would be higher, they generally thought the high-carbon emission tonnage per plane would add up to a high percentage of total UK carbon emissions.

> "I think the emissions didn't account for as much as I thought they would, considering how much fuel planes carry." – Workshop 6

II. Initial view: Participants who fly valued international travel for its positive impact on their quality of life but raised questions about the fairness of a minority of individuals disproportionately contributing to emissions from air travel.

To some degree, participants accepted that to maintain their quality of life people 'deserved a break' abroad and should not be penalised for one holiday a year.

> "Sometimes it's that balance of quality of life. To go away and relax after working hard.... And it's normally a flight we book in to do that because we want some sunshine." – Workshop 6

Participants also considered the differential impacts from flying on carbon emissions. They noted that wealthier households generated a disproportionate share of emissions because they fly more often. This disparity was seen as significant because around half the UK population does not fly abroad at all, and higher-income households tend to fly more often than lower-income households. As a result they did not think it was fair for people who fly less, or not at all, to pay towards reducing carbon emissions for those who fly more.

III. There were differing views on which flights were expendable or more optional.

Participants' preliminary areas of agreement and disagreement centred around what constituted 'luxurious' flying behaviours. For example, participants had differing views on people flying multiple times a year to visit their family: some thought it was a holiday regardless of family commitments and should not be treated differently to other peoples' holidays, while others thought that visiting relatives should not be considered as an optional flight, as people may have responsibilities for children or elderly family members. For those who felt flying played an important role in their lives (for example, visiting family abroad), flights others would see as 'leisure' were not necessarily always seen as optional.

[23] In expert presentations, it was noted to participants that only the outward leg of a flight from the UK is counted into UK territorial emissions – so return flights from a destination outside of the UK would not count towards UK territorial emissions.

"I love exploring and meeting different people, different cultures, [hot weather]…I can do without meat for a while, and I can change my […] heating in the house, but this one is kind of mental. It's joy, it's pleasure." – Workshop 6

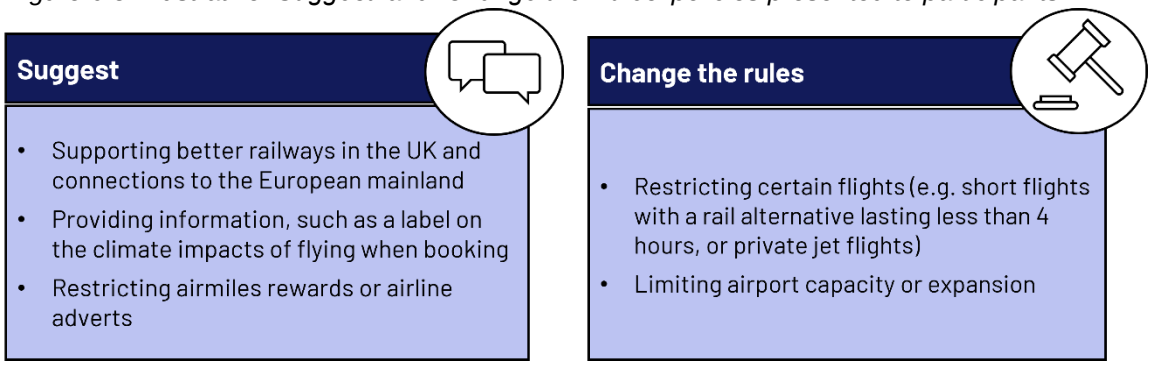
Policy levers

As detailed above, the policy levers introduced to participants for aviation were 'Suggest', 'Change the Rules', 'Incentivise' and 'Removals'. This section discusses participant views on acceptability of specific policies within the lever buckets in more detail.

'Suggest' and 'Change the Rules' policies

The policies in these buckets are detailed in the figures below:

Figure 6.3: Illustrative 'Suggest' and 'Change the Rules' policies presented to participants



I. Participants thought that policies focusing on information would not be enough to reach Net Zero goals.

Across the aviation deliberations, participants recognised that 'Suggest' policies on informing and educating people on flight emissions would not be enough to make the changes required to reach Net Zero. However, there was a perception that labels which would indicate the emission impacts (similar to food labelling that indicates nutritional value), would be relatively easy to put on airport booking pages and it might have a small nudge effect on some people.

Participant views on information-based policies for aviation were different to similar policies for diet, where they would often speak about the importance of educating children in schools and people in supermarkets.

II. They saw banning airmiles as an easy win.

Participants thought that banning air miles was an easy win that would influence people's behaviour and reduce marketing incentives to fly, although participants did not elaborate on whether they thought this would be effective. Participants thought banning airmiles could act as a moderate disincentive for people to fly frequently because they would not be rewarded with discounted prices.

"I think air miles should be the thing of the past. If they're trying to cut down on people flying, rewarding them with more flights is not to this end. It encourages people to fly more." – Workshop 6

III. **Some participants thought improving the affordability and reliability of rail infrastructure would encourage a shift away from flying.**

Participants thought that rail travel has the potential to provide a comfortable and convenient alternative to flying for domestic and some short-haul European journeys, particularly given the avoidance of airport related hassles and when factoring in airport waiting times.

> "It's the time spent. The train is far more comfortable and pleasant when it's efficient." – Workshop 6

They felt that enhancing the affordability, frequency, and connectivity of train services, both within the UK and extending into Europe, would help to encourage a shift away from flying, particularly for journeys of a similar length.

> "I was thinking about the internal flights, people flying from London to Manchester. Surely it's quicker to get the train by the time you've waited. If the infrastructure with the trains was more reliable perhaps people would use the train more." – Workshop 6

IV. **These participants felt that improving rail infrastructure could also increase public buy-in for more stringent policies, such as restricting or taxing domestic short-haul flights.**

For these participants, improving public railway infrastructure was seen as the preliminary step that should be taken before restricting or taxing short-haul UK flights. Participants emphasised the need to have readily available and practical alternatives before accepting potential increases in flight costs or limitations on flight availability.

> "If there is a really good alternative, like if you had a good link from Birmingham to Glasgow, then you can ban the flight. People don't mind if there is a genuine alternative." – Workshop 6

Most participants thought that it would be more acceptable to restrict some short-haul domestic flights than some short-haul European flights, as the latter would involve significantly longer train travel times. Moreover, the yearly holiday travel patterns associated with European destinations contributed to perceptions that banning or heavily taxing these routes would not be acceptable.

> "A flight from England to Spain, if that's a short flight, then if they're going to ban it, I don't think that's acceptable. But maybe from London to Birmingham, that would be acceptable." – Workshop 6

V. **However, other participants thought that improving rail infrastructure would not be effective at encouraging a shift from flying to rail.**

These participants felt that even substantial improvements to the rail network could not challenge the inherent convenience of air travel, particularly for journeys to continental Europe. They doubted that even significant improvements to railway infrastructure could genuinely offset the advantage of shorter travel times offered by air travel. For these individuals, particularly when travelling to Europe, the prospect of significantly longer train journeys acted as a considerable deterrent, one that they believed could not be adequately addressed solely through enhancements to the rail network.

> "I wanted to go to Amsterdam. I wanted to go by train. It was so complicated. There were so many extra costs, including overnight costs, and the time it takes… by the time you did the whole journey… It was easier to fly." – Workshop 6

Through deliberation, participants began to come together around improving the cost, reliability and convenience of trains as key factors that would make the policy option more effective in replacing some journeys – for example, replacing some domestic flights. Participants already accepted higher taxes for better public transport when discussing surface transport, so the impact on managing aviation demand would be an additional benefit.

VI. Participants generally thought that limiting airport expansion and capacity is an acceptable way to manage demand for flights.

Participants thought these policies could be effective at reducing the growth in demand for flights by putting a practical limit on how many flights could take off per hour or per day. However, there was some awareness of wider economic factors affecting airport expansion, such as global economic growth encouraging more international flights.

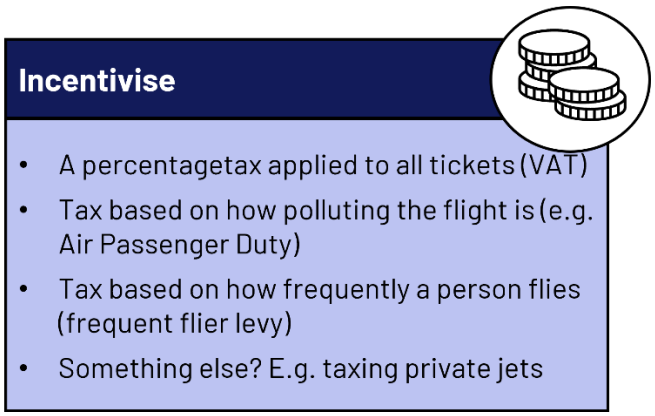
> "For me I think limiting the airports seems like it could be potentially more effective especially as we've heard growth is likely to increase." – Workshop 6

Participants wanted to limit airport expansion and capacity primarily because they thought it was unfair to expect individuals to change their flying behaviour whilst allowing airline companies to grow their industry. They were concerned that the expansion of airports would undermine the efforts of individuals trying to reduce their environmental impact by not flying more.

'Incentivise' policies

The policies in this bucket are detailed in the figure below:

Figure 6.4: 'Incentivise' policies



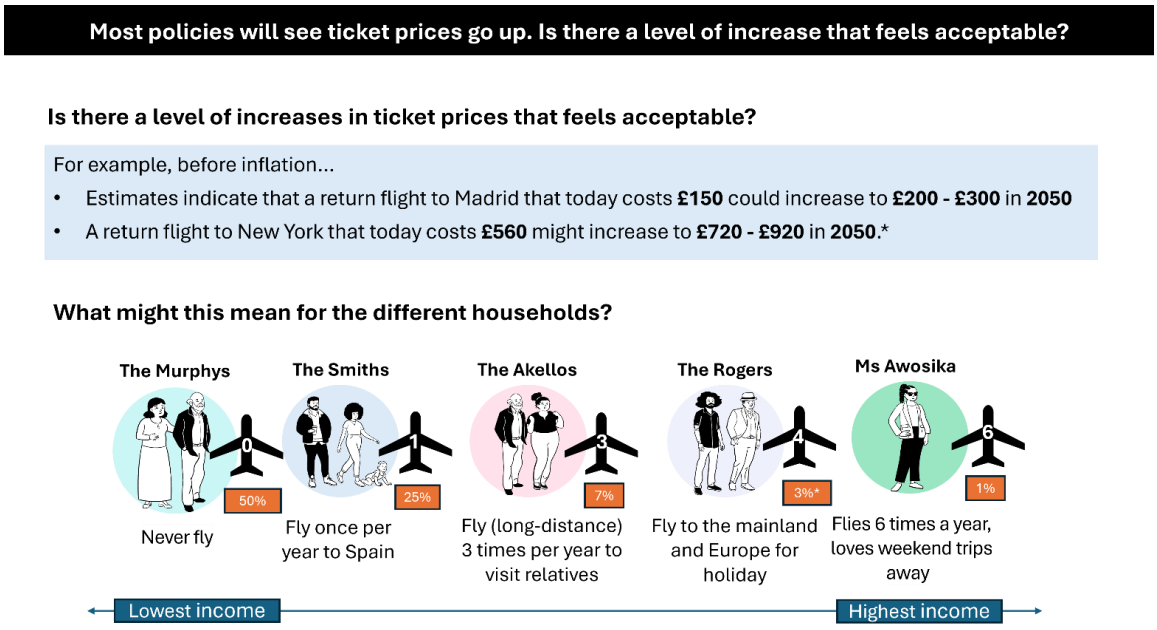
I. Participants generally agreed it was acceptable and appropriate for taxes on flights to reflect the environmental impact of air travel.

A recurring theme throughout the discussions was the need for any flight-related tax to accurately reflect the environmental impact of air travel.

Related to this, participants noted the potential for inconsistencies in airline pricing practices, where longer flights may be priced proportionately lower than shorter routes due to market factors. Participants felt this could result in individuals paying less tax for flights with a larger environmental footprint, which would undermine the objective of a fair and environmentally sound tax system.

II. **Participants generally accepted the need for ticket prices to increase – and showed more support for this than similar options in other policy areas.** As part of deliberations, participants were asked both if it was acceptable for the cost of flights to increase due to targeted taxes, and if the cost of flights increased in general.

Figure 6.5: Slide shown to participants, showing illustrative flight cost increases



**This slide was shown to participants as a way of providing indicative costs for how much flights might increase by, not factoring inflation. Numbers used were linked to CCC analysis in progress and therefore will differ to the final numbers in the CCC's Seventh Carbon Budget advice. They were presented to participants as illustrative. The percentages in orange boxes indicate what proportion of the population fly a similar amount.*

Participants generally viewed the suggested price increases as acceptable, believing that higher costs would reduce frequent flying. This aligned with their general perception of air travel as a non-essential choice, unlike participants' views on polluting options in other policy areas, such as transport and home heating. Participants had a relatively high willingness to accept price-based interventions as a means of restricting potentially excessive air travel, particularly among those with the financial capacity to absorb the additional costs.

> "I think it's acceptable too, I don't think it's that bad of a rise. It's a luxury for most people so that's a choice you've got to make." – Workshop 6

Some participants noted that around 50% of households in the UK do not fly abroad at all, so flight price increases would not affect them anyway. This aligned with a recurring theme throughout the deliberations, where participants often sought to balance environmental goals with social equity considerations.

> "The stat was 50% in the UK don't fly at all and 25% fly around once so it won't impact 75% of people. If it's the smallest number who fly the most it seems more fair to me." – Workshop 7

However, participants also expressed concerns about the potential for price increases to disproportionately impact lower-income households, particularly those with children. For the latter group, a few participants reflected that these households were already paying higher costs due to higher prices

during school holidays. Participants overall argued that such increases could make air travel inaccessible for 'ordinary' people, while those on higher-incomes would remain largely unaffected.

Despite this, participants still thought the price increases were acceptable because the overall benefits of curbing aviation demand outweighed the potential consequences of disproportionate impacts on lower-income households. This was reflected in the online polling (see **Figure 6.6** below) at the end of the final workshop (Workshop 7).

III. Participants thought VAT on plane tickets could be a practical solution, but felt unsure it was justified on flights that generated fewer emissions.

Participant deliberations on an equal rate of tax on all plane tickets, such as a VAT, generated a mixed response. While some participants perceived this as a practical approach, as the tax burden would fall solely on those purchasing tickets, other participants raised concerns about proportionality. They thought that since shorter international flights generate fewer emissions, it was fairer for the tax to be linked directly to emissions (as the price of the ticket and therefore the tax may not always link to the emissions of the flight).

> "Not acceptable. I don't think it's fair for everybody to pay, even for shorter flights. It should be based on the length of flight and amount of emissions." – Workshop 6

IV. Initially, some participants preferred taxes based on the length of each flight whereas others preferred taxes based on the number of flights taken in a period of time (i.e. a frequent flier levy).

Some participants initially held a stronger preference for a tax based on length of flight due to their higher per flight emissions. These participants preferred this option upon learning that longer flights contribute over two-thirds of UK aviation emissions,[24] whereas shorter flights, despite their greater frequency, have a lower overall carbon impact.

> "If you're only doing a short flight, why should you be paying the same amount [proportionately] as someone doing a long-haul that's creating more emissions? It's common sense, I think." – Workshop 6

Other participants preferred a frequent flyer levy, which is a proposed tax on air travel that increases with the number of flights a person takes within a given year. These participants viewed frequent flying as a luxury choice taken by those with higher incomes who could absorb the extra cost. They felt that taking multiple flights per year was an optional choice, so approved of their proportionate taxation.

> "Frequent flyer levy, I think it's very acceptable. People that fly a lot tend to be able to afford to fly a lot. It's a luxury. It's the easiest place to start." – Workshop 6

V. By the final workshop, participants slightly favoured a frequent flyer levy, or an approach which combined a frequent flyer levy with a tax based on the length of flights.

As deliberations progressed into the final workshop (Workshop 7) and participants grappled with the complexities of distributional impacts on households, a shift in perspective emerged. Participants were more interested in how to measure the overall carbon impact of air travel, considering both the number

[24] Page 11 of *Above the clouds: UK Aviation Trends in 2023*: "Close to 70% of UK aviation's emissions come from long-haul flights". https://www.transportenvironment.org/uploads/files/2404-2023-UK-Aviation.pdf

of flights/frequency of flying and the distances flown. Participants debated how to fairly compare the emissions of numerous short flights against fewer long-haul flights. They highlighted the complexity of accurately assessing individual contributions to aviation emissions.

> "If I'm a frequent flyer but don't travel the distances [other participant] travels, how does that balance out? [They] might travel twice a year on long flights, and I might travel 6 times a year [to] Europe. Am I using as much carbon? I don't know." – Workshop 7

When participants were prompted on a combination policy of frequent flyer levy and a tax based on length of flight, they felt a version of this would be an acceptable solution and may create a tax system based on total emissions across a set period (e.g. one year). Participants suggested that total emissions by volume should be measured by tracking both number of flights and distance travelled, not one or the other.

> "I like that [combination]… It depends on the emissions, because if 3 flights to Paris are the same, emissions-wise, as a flight to Jamaica, that cancels each other out. Go by emissions." – Workshop 7

This was reflected in online voting at the end of the session, in which most participants said they would support both a frequent flyer levy and a tax based on emissions or length of flight.

Figure 6.6: Workshop 7: Online voting – aviation

At the end of the final workshop, participants voted on several of the key policies. The results are below:

- The majority (20 out of 26) participants agreed with the statement: *"It is acceptable to introduce an increase on ticket prices of the amounts we have discussed to help manage how we fly."*
- When asked which policies they supported, most participants supported both a frequent flyer levy and a tax based on the emissions or length of a flight, as well as funding for rail alternatives and limiting airport expansion.

One participant raised a concern that the combined policy could inadvertently incentivise people to prioritise a longer, untaxed flight as their first trip, subsequently opting for shorter, taxed flights later. This could potentially undermine the environmental objectives of the policy.

VI. Participants strongly supported exemptions to frequent flier levies, particularly for family emergencies or other unavoidable situations.

Participants who accepted the frequent flyer levy also recognised the need for some exceptions to accommodate different household circumstances and mitigate potential inequities. Participants highlighted the need to avoid penalising individuals and families who fly frequently out of necessity, such as those with international family or education commitments, as these people often lacked alternative options for maintaining essential connections. They thought it was important not to disproportionately burden people with limited choices around air travel.

> "I was thinking there could be an exception on the frequent flyer levy. I've got grandparents in the Caribbean… It seems unfair that we would have to pay lots of money in case of an emergency… there could be exceptions introduced." – Workshop 6

Participants also recognised that individuals living in isolated areas often faced higher travel costs and limited transportation alternatives, making air travel a necessity rather than a luxury, and therefore meriting a possible exemption.

I. **Participants supported taxing private jets and other forms of what they saw as less efficient air travel such as first-class flights or flights with empty seats.**

Participants expressed strong desire to ban or heavily tax private jets and first-class tickets on short-haul flights. Participants largely viewed private jet use as both excessive and inaccessible to the majority of UK households. Given that private jets contribute disproportionately high emissions per passenger per flight compared to commercial flights, participants advocated for either a ban or a taxation scheme based on emissions or necessity.

> "I feel like banning the private jets is the big thing. Not altogether, you might need it for medical things, but things like [celebrity] 'flying to the shop to get milk', it's ridiculous." – Workshop 6

There was also a desire to explore other regulatory measures targeting airline companies, such as restrictions on ticket pricing, profits, and flights with empty seats. These perspectives highlighted a preference for targeted interventions that address perceived inequalities and inefficiencies within the industry.

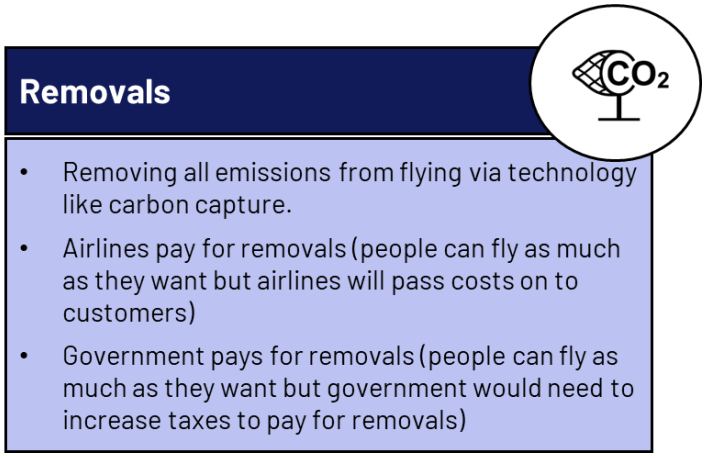
> "[There are] so many empty seats on planes. My dad just flew to Vegas, the plane was half empty, surely there can be something done about that too. There wouldn't be any necessity to have three flights a day when they're not full." – Workshop 6

As deliberations progressed, participants recognised that while such measures might address fairness concerns, they would likely be insufficient to achieve Net Zero emissions. This realisation highlighted the participants' developing understanding of the scale and complexity of the challenge, prompting a shift towards more deeply considering other policy interventions. However, participants still saw value in a range of policies even if they would not contribute as much to reaching Net Zero.

'Removals' policies

The policies in this bucket are detailed in the figure below:

Figure 6.7: *'Removals' policies*



Removals as a policy option was explained to participants with the following context:

- 'Removals' means carbon dioxide is 'removed' from the atmosphere using carbon capture and storage.
- The two options for funding removals were described as:
  - Offsetting requirement on airlines: Rules that require airlines to have 'Net Zero' emissions by paying for other companies to remove an equivalent amount of CO_2 from the atmosphere, with airlines passing costs on via increased ticket prices.
  - Government funded removals: Flying continues and government pays for removals (and sustainable fuel) to balance out the warming impact of aviation emissions, with funds raised via general taxes.

I. Participants were less familiar with removals technologies and some expressed initial concern with their safety and effectiveness.

When considering 'Removals' policy options for the first time, participants raised questions and concerns about the viability of the technology, the time it would take to make it usable internationally for the purposes of large-scale carbon removals and how it would be regulated. They were also surprised and concerned by the technology itself. Participants were not always comfortable with the prospect of storing the carbon underground.

> "I was going to say that this idea [storing carbon underground] gives me the heebie-jeebies." – Workshop 6

II. Participants felt removals should supplement managing aviation demand, and should not be the primary way to address emissions from flying.

Some participants generally shared a sentiment that removals should not be the priority policy approach. They often framed carbon removal as a form of "cheating" which allowed individuals to continue high emissions behaviours while relying on technology to offset the impact. They emphasised the importance of personal responsibility and behavioural change, arguing that individuals should be conscious of the environmental impact of their choices, particularly regarding air travel.

> "I feel a bit iffy about it. Personally, I think we should be moving more towards people acknowledging what's going on and taking a bit of responsibility, rather than expecting us to act the same." – Workshop 6

Nevertheless, participants thought that carbon removal technologies could play a role in addressing emissions. They felt it should be used as a supplementary measure to support, rather than substitute for, efforts to manage aviation demand.

Participants who were concerned about carbon removal technologies thought they could undermine efforts to promote sustainable lifestyles and shift societal norms towards lower-carbon choices. These participants thought removals could play a part in reaching Net Zero but should not be used to replace the other actions and policies required.

III. Participants generally thought that paying for carbon removals via taxes on all citizens was unfair.

Most participants, including both frequent flyers and those who did not fly, did not think it was fair for those who did not fly to bear the costs of carbon removal for emissions they did not generate, as they were not responsible for the initial emissions.

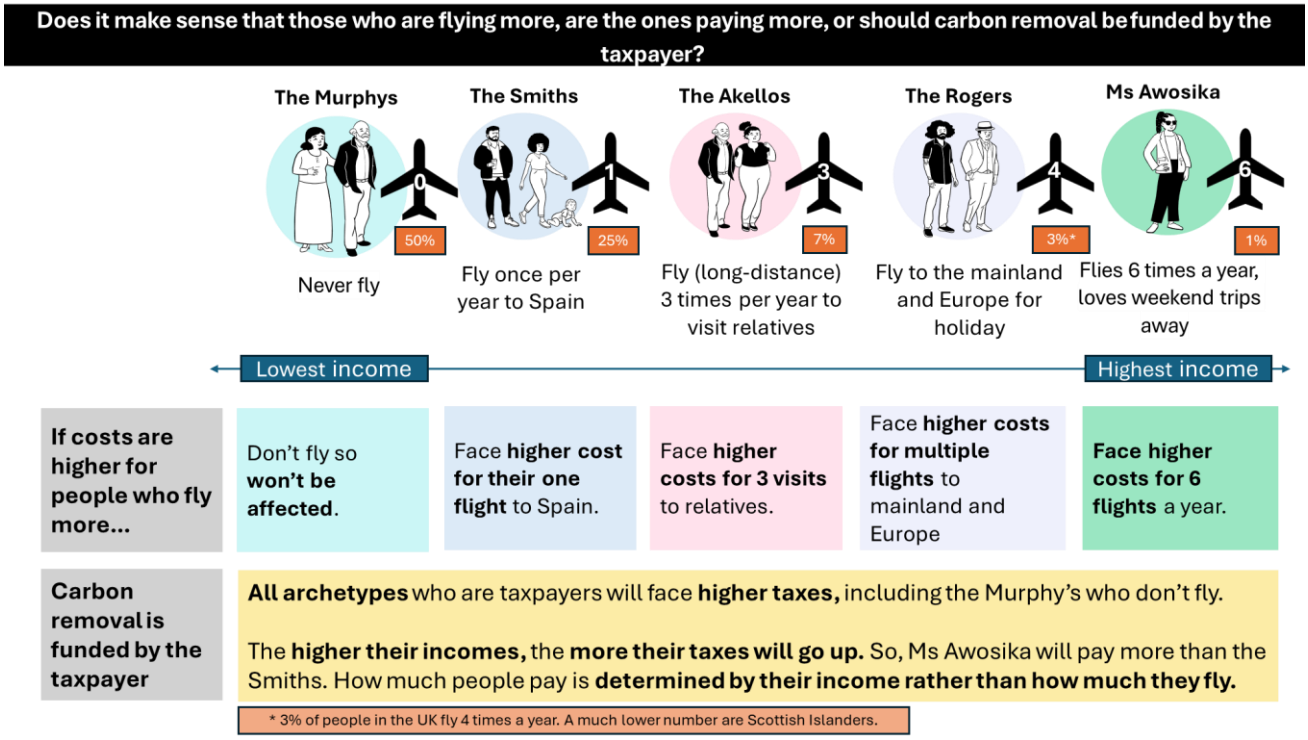
> "I never fly, it's only under extreme [circumstances]… I don't want to pay. I'd rather not be affected by it." – Workshop 6

IV. Participants wanted to see airlines or those who fly cover the costs of removals.

Participants were very conscious of who would bear most of the cost burden of removals. There was a general sense initially that removals should not be funded by the taxpayer, rather the cost should be borne by passengers or airlines. Airlines and those who fly covering the cost was thought to be the fairer approach in these initial discussions because flying was considered a choice rather than a daily necessity and around half of the population do not fly.

> "The thought of government doing that with general taxation would be lunacy in my opinion… It [would be] sharing the burden of the pleasure of flying from the 20% who do it to the 100% who fund it." – Workshop 6

*Figure 6.8: Example material shown to participants during discussions around funding removals**



** This slide was shown to participants as a way of providing indicative impacts of passengers or airlines paying for carbon removals and of carbon removals being funded through taxes. The percentages in orange boxes indicate what proportion of the population flies a similar amount..*

V. Participants suggested that airlines could be more strictly regulated to ensure they did not pass costs of carbon removal on to ticket prices.

Participants wanted the cost of removals to be paid for by airlines rather than the taxpayer. While they understood that this would likely mean an increase of ticket prices, they sought to find ways of reducing this pass through of costs for removals to increase ticket prices. They suggested mechanisms such as introducing a strict regulator for flight prices or windfall taxes on airline profits. They thought a flight price regulator could ensure that flight price increases would be passed on to the customer fairly, and that airline companies would pay their share through reduced profits. This perspective underscored a desire for a more equitable distribution of costs, where those who profit from aviation activities contribute proportionally to addressing their environmental impacts. Nevertheless, participants tended to think this would be challenging to implement.

VI. Some participants had low trust in airlines to manage removals and felt there should be some government oversight or regulation of this process.

Towards the end of the deliberations in the final workshop, participants still wanted airlines to fund removals (rather than taxpayers), but were concerned that airlines may not use this money effectively and consistently to pay for removals. This scepticism stemmed from a perceived lack of transparency in airline operations and a belief that regulatory mechanisms for airlines to offset their emissions would be insufficient to ensure accountability. Participants therefore advocated for government to have a regulatory or oversight role to ensure that airlines would effectively and fully offset emissions from their flights.

"I think it's good for the airlines to do it but then I think it's bad, because how do you enforce it? It's good that they'd have to think of cheaper ways to reduce emissions, but my main thing is how it's going to be policed?" – Workshop 7

VII. There was also concern about the economic impacts of putting costs on airlines.

There was some recognition that airlines could only increase prices so much before they would go out of business. There was also fear that the wider economic climate, particularly international tourism, would be negatively affected if airlines paid for removals.

"It's a given [airline companies] would do it anyway, but if they put [the prices] up too much it may stop the customer flying with them, I think they would have to have a good think." – Workshop 7

Areas of agreement and disagreement

This section brings together the key areas of agreement and disagreement throughout panel deliberations on aviation, as reported on in this chapter.

Agreement

- **Banning airmiles and more information about the emissions of flying.** Participants generally supported public awareness campaigns to address the evident knowledge gap around aviation's contribution to UK emissions. Participants also agreed on banning air miles schemes, but acknowledged this, and information campaigns, alone would be insufficient to tackle the problem.

- **Support for improved railway infrastructure.** Participants consistently expressed strong support for improving railway infrastructure across the UK, as they felt it would be in support of the wider public good. They thought it would enhance people's quality of life and provide a viable alternative to short-haul flights. Participants emphasised the need for improved affordability, reliability, and convenience of train travel to make it a more attractive option.

- **Targeting non-essential flying.** Participants were keen to target policies at less 'essential' and less efficient forms of air travel. There was notable support for restricting or heavily taxing private jets and first-class tickets on short-haul flights, emphasising the desire to address perceived inequalities and inefficiencies within the aviation industry.

- **Linking ticket price increases to the emissions impact or frequency of flying.** Participants overall agreed that an acceptable way of managing flight demand was to increase costs for those who were responsible for more emissions from flying (either through flying more frequently, or flying further distances).

- **The indicated ticket price increases are acceptable.** Participants generally supported the illustrative price increases, viewing higher flight costs as a reasonable measure to reduce frequent flying. They considered most air travel non-essential behaviour, making increased prices more acceptable.

- **Removals should not be the primary way of reducing aviation emissions.** While some participants acknowledged the potential role of carbon removal technologies in addressing the existing burden of atmospheric carbon, they emphasised that it should not be the main approach.

Participants viewed carbon removal in isolation as insufficient to address the root causes of climate change. They emphasised the importance of individual responsibility and behavioural change to reduce emissions.

- **Concern about disproportionate impact on low-income households.** Throughout the deliberations, participants preferred policies that avoided exacerbating existing inequalities. They expressed concern about policies disproportionately impacting lower-income households, people who fly infrequently and people who rely on air travel for essential journeys.

Disagreement

- **Defining acceptable flying behaviours.** Participants held differing views on what constituted acceptable or reasonable flying behaviours. This divergence in perspectives influenced their attitudes towards policies such as frequent flyer levies and price increases. Some advocated for stricter measures targeting frequent flyers while others did not want people who fly for what were considered essential reasons such as education or family responsibilities to be overly penalised.

- **The relationship between improving rail and demand to fly.** Participants were somewhat split on whether improved rail infrastructure could become a viable alternative to flying. For some, improvements in the reliability and convenience of travelling by rail (alongside restricting domestic short-haul flights) could create an alternative option for domestic flights which more people would consider. Others, however, emphasised the convenience of flying, and doubted that even significant improvements to railway infrastructure could offset the advantage of shorter flight times.

- **Frequent flyer levy vs. tax based on length of flight.** While there was a general desire to align the tax burden with environmental impact, participants were split on which policy would achieve this most effectively. A combination policy was thought to offer the best of both worlds, but some participants still held strong views about exemptions and fairness. There was little consensus about how a combination policy could work in practice.

- **Role of carbon removal technologies.** Some participants acknowledged the potential contribution of these technologies to Net Zero goals alongside other actions and policies. Other participants viewed them as a form of 'cheating' that could undermine efforts to promote personal responsibility and behavioural change.

- **Funding mechanisms for carbon removal.** Initial discussions on funding carbon removal technologies were heavily influenced by the polluter pays principle, with participants favouring either passengers or airlines bearing the costs. As deliberations progressed, however, lack of trust in airline-funded removals grew due to concerns about profit prioritisation and a lack of transparency. As a result, participants argued for government to have a role in overseeing removals (which would still be paid for by airlines).

7 Cross-cutting findings

This chapter discusses the cross-cutting findings that emerged from the panel about household choices and their role in achieving Net Zero in the UK. These findings reflect the panel's values and concerns regarding the transition to a low-carbon society and provide valuable insights for policymakers seeking to design acceptable and effective policies. The analysis draws upon discussions across all seven workshops.

7.1 Consistency of views across the panel workshops

The following themes were consistent across deliberations in all workshops:

Participants supported the household choices: After presentations on what the changes were and how the CCC had landed on their pathways to Net Zero, participants overall supported the premise that these changes were necessary. Their discussions rarely raised concerns about the feasibility or the necessity of these changes, and instead focused on how these could be fairly achieved through policy levers.

Affordability as a prerequisite for acceptability: Participants repeatedly said that household choices must be affordable to be acceptable. They were wary of policies that would impose significant financial burdens, particularly on those already struggling with the cost of living. This concern was particularly pronounced for choices involving high upfront costs, such as purchasing heat pumps. Across the deliberations on all policy areas, participants found ways for the choices to be more affordable for UK households.

Financial support for upfront costs: Participants acknowledged the potential for long-term savings from changes to home heating and insulation but expressed concerns about the impact of high upfront costs on their short-term budgets. They highlighted the challenges of balancing immediate financial needs with long-term investments, particularly for households with limited savings or facing financial constraints. Participants strongly supported grants, particularly for lower-income households, to help them transition to low-carbon heating systems and improve the energy efficiency of their homes. They also suggested interest-free loans and innovative financing mechanisms to spread the cost over time.

Making sustainable choices easier: Participants favoured policies that integrated into their routines more easily and minimised daily life disruptions – for example, replacing a small amount of meat in pre-prepared meals, or changing restaurant menus to a plant-based first approach. They tended to prefer the use of incentives to encourage household adoption for larger changes, preferring for example, a grant for home insulation upgrades. Overall, participants supported policies that minimised the cost, time, and effort associated with low-carbon options, such as enhancing public transport infrastructure to improve convenience.

Informational campaigns: Across all policy areas, participants consistently highlighted the importance of information and guidance in empowering individuals to make informed choices. Participants' emphasis on information campaigns persisted even when experts pointed out their limited impact in isolation. They suggested that information could play a valuable role alongside other policy measures. For example, participants wanted schools to engage and inform children from a young age, as they recognised the potential of early education in shaping future behaviours.

7.2 Changes across the panel workshops

Throughout the deliberations, participants views changed and evolved as a result of being given new information, hearing the views of others, and in their own reflection time. While this often was in relation to the specific topic being discussed (and covered in the relevant chapters of this report) there were some cross-cutting themes that emerged.

Understanding of fairness: Fairness emerged as a critical concern, but in some cases, participants had divergent expressions of what 'fairness' might mean. They emphasised the importance of fairness in both the outcomes and application of policy levers.

- **Fairness of impact or outcome** meant making sure that new policies didn't disproportionately impact different groups of households. The focus is on lessening any negative effects, especially the potential costs, on vulnerable households, such as those with lower-incomes or children. For example, if a policy makes home heating more expensive, it would be unfair if it placed a larger burden on families who are already struggling to pay their bills.

- **Fairness of application** refers to how policies are put into practice and who benefits from them. It's about making sure everyone has equitable access to support. For example, if a policy provides financial assistance for home heating, fairness of application means ensuring that eligible households, regardless of their income level, can easily access and benefit from this support. Some participants felt it was unfair to exclude higher-income households from such financial support.

- **Fairness in relation to how essential behaviours are:** Through comparisons across different policy areas, participants generally accepted that non-essential behaviours could be subject to greater taxes to achieve Net Zero. For aviation, participants expressed greater acceptance of taxes and other cost increases. Participants expressed more cautious views overall around high upfront costs for heat pumps, because home heating was seen as essential rather than discretionary.

Through deliberation, participants thought these definitions of fairness could co-exist in policymaking and weren't necessarily contradictory.

Low-carbon alternatives are a prerequisite to behaviour change: Initially participants expressed concern that policies to change household behaviours were not realistic because they were curtailing choices and people would not accept that. However, as deliberations progressed, participants began to say they could support policies that discourage or phase-out carbon-intensive behaviours if they had access to convenient and affordable alternatives. They viewed a lack of alternatives as a significant barrier to change and expressed concerns about being unfairly penalised for behaviours they felt unable to avoid. For example, participants were more open to policies restricting short-haul flights if significant improvements were made to railway infrastructure, particularly in terms of affordability, reliability, and connectivity. They viewed a well-functioning rail network as a viable alternative to short-haul flights, making restrictions on flying more acceptable.

The need for shared responsibility: As deliberations progressed, participants began to more strongly emphasise that reaching Net Zero should be a joint effort between the Government, businesses and households. They thought higher-income households should overall pay more in tax, but they should benefit in kind, alongside lower-income households, where upfront costs were required. This shared

responsibility extended to businesses, with participants advocating for greater corporate accountability and contributions to the transition. An example given was windfall taxes on energy companies which could be used to subsidise some of the cost of heat pump grants.

8 Future deliberation

8.1 Project structure and management

The Citizens' Panel successfully engaged participants in complex discussions about Net Zero policy options.

The **CCC's active involvement throughout the deliberations fostered a collaborative atmosphere** and empowered participants to feel actively involved in shaping policy recommendations. This close collaboration proved particularly valuable when the unexpected General Election required significant adjustments to the panel's structure and format. Similarly, **having the process commissioned by the body directly giving policy advice (i.e. CCC)** helped with ensuring findings are used, and constructive dialogue could more easily take place between citizens and policy professionals.

The **election's timing meant the remaining workshops were condensed into a shorter timeframe** and the online community's role was significantly reduced. The changes, while enabling the panel to finish its work on time and maintain momentum, limited opportunities for ongoing engagement between workshops and reflection within the online community. A longer timeframe with a more active online community, as per the original design, would have allowed participants more time to process information and refine their views (including through small activities between workshops).

Encouraging participants to go beyond information-based interventions, particularly when discussing diet policies, was challenging but successful. There was strong, intuitive feeling amongst participants that increasing people's access to information would inevitably change their behaviour – despite being informed that these interventions typically resulted only in small behaviour change on a macro-scale. This is typical of deliberative research where participants are introduced to new topic areas and their views or commitments develop over time. This means they are more inclined to feel like other people's views and commitments would similarly change if given access to the same information. Nevertheless, during panel deliberations, when prompted to think beyond information-based interventions, fruitful discussions and detail emerged.

Incorporating numbers and outputs from financial models can be used effectively in deliberation. Using specific financial figures in discussions helped move beyond abstract ideas and allowed for a deeper understanding of the trade-offs involved. Presenting participants with detailed costs associated with various options grounded the discussion in practical realities and facilitated a clearer understanding of the financial implications of different policy options.

8.2 Methods of communication

The framing of the topic around the accessibility and affordability of household choices proved effective in keeping discussions focused and relevant to participants' lived experiences. This framing, and its reiteration throughout the workshops, encouraged active participation and minimised diversions from the core themes. Participants readily engaged with the concept of household choices, drawing upon their personal experiences and perspectives to contribute to the deliberations.

Conveying the complexities of distributional impacts and policy packages was challenging at times. Providing more opportunities for clarification and discussion, such as Q&As or facilitated panel discussions, could further enhance participant understanding.

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