

Net Zero Review: Interim Report

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About Energy Saving Trust

Energy Saving Trust is an independent organisation dedicated to promoting energy efficiency, low carbon transport and sustainable energy use to address the climate emergency.

Our work focuses on reaching net zero targets by taking action to reduce energy consumption, installing new infrastructure and accelerating a move to sustainable, low carbon lifestyles.

A trusted, independent voice, we have over 25 years' sector experience. We provide leadership and expertise to deliver the benefits of achieving carbon reduction targets: warmer homes, cleaner air, healthier populations, a resilient economy and a stable climate.

We empower householders to make better choices, deliver transformative programmes for governments and support businesses and community groups with strategy, research and assurance – enabling everyone to play their part in building a sustainable future.



Treasury Interim report on Net zero

In December 2020, the Treasury published an [interim report](#) on its review into the costs of Net Zero and how these costs could be distributed. The [interim report](#) sets out the analysis so far and sought feedback on the approach ahead of the final report, due in spring 2021.

The Terms of Reference of the Review can be found [here](#) and are summarised below

Terms of Reference:

To consider how the transition to net zero will be funded and assess options for where the costs will fall. This will involve:

1. Analysing the range of choices for how households, businesses and the taxpayer could contribute towards different elements of the transition to net zero.
2. Identifying mechanisms to create an equitable balance of contributions.
3. Maximising opportunities for economic growth as we transition to a green economy.
4. Evaluating the trade-offs between cost, competitiveness, effects on consumers and impacts on the taxpayer.

The review will consider the full range of government levers, including tax. It will not duplicate existing or ongoing work elsewhere, such as:

- detailed policy to decarbonise specific sectors
- the costs of adapting to the impacts of climate change
- the social and global co-benefits of decarbonisation

Summary of our response

We welcome this opportunity to comment how the costs of delivering net zero can be fairly allocated across the economy. Our response focusses on homes.

Our key point builds on the new finding by the Climate Change Committee (CCC) that a decarbonisation pathway built on energy efficiency with a high degree of electrification, would reduce household energy bills. We therefore strongly support an overarching policy goal of delivering **lower consumer bills alongside net zero emissions**.

To approaching this, we think there are two key areas of consideration:

- A) How the overall investment can be reduced by:
 - i) A pathway based on reducing energy demand by improving fabric standards
 - ii) Proving policy certainty to investors and markets
 - iii) Regulating to deliver net zero outcomes faster

- B) A fair transition – how costs and benefits can be distributed fairly by using:
 - i) Homeowner self-funding, ii) Energy bill levies iii) General taxation iv) Carbon pricing and v) New borrowing

Where the costs are moderate and homeowners are likely to recoup the investment, we think it reasonable for homeowners to self-fund work. Where this is not the case, we support innovative financial options to spread the cost between subsequent owners and approaches to partially or wholly socialise the costs. We do not think that fuel-poor households should face upfront costs and their retrofit costs should instead be met by grants (along with long-term, low interest loans where appropriate).

We do not support new or expanded energy bill levies. In addition, we think the current levy package should shift to general taxation. Removing this cost on electricity bills would stimulate the take-up of low carbon heating in the most equitable way and without reducing heating affordability for low-income households.

Government intervention here would stimulate early action whilst supporting economic recovery. To do this there is an opportunity for the proposed National Infrastructure Bank to support households with the upfront cost of home upgrades.

Finally, we set out that consumer *engagement* is the ultimate challenge to decarbonising homes. We know how effective engaging consumers can be from our own experience of supporting households in Scotland and beyond. For widespread action to be effective more consideration and resources need to be directed into engaging consumers and supporting them to act.

1. The cost of net zero

In their [2019](#)¹ Net Zero report, the Committee on Climate Change (CCC) identified buildings and industry as the most costly sectors of the economy to decarbonise, with homes potentially accounting for up to around half the total investment required.

The CCC's latest report (on the Sixth Carbon Budget),² refines this estimate. Based on a largely electrified 'balanced pathway' approach to decarbonising heat, it now estimates an £8.6 billion investment per annum with an average net³ investment of £10,000 per property for the UK's 29 million homes.

1.1. How 'fixed' is this investment cost?

This estimate is dependent on various assumptions - that a cost-effective approach is pursued and that an 'enabling' policy framework is developed to support and incentivise investors.

1.2. Demand reduction as the foundation

The CCC assessed the feasibility and cost-effectiveness of five different hybrid technology scenarios to decarbonise heat. The most cost-effective and feasible scenario, their 'balanced pathway' is built on moderate insulation (upgrading most homes to an energy performance certificate band 'C' or equivalent) with a heat largely provided through efficient electric heating (21 million heat pumps with up to 5 million using hydrogen to 'top up' heating).

Whilst its previous analysis (2019, 2020) suggests that low-carbon heating would result in higher bills or bills that are similar to current levels, the 'balanced pathway' scenario would reduce future energy costs. By 2050, these cumulative operational savings would outweigh the total investment costs - with a £2 billion operational saving in 2050. Additionally, this pathway should provide a good return on investment for the UK economy over and above its net zero benefits.

This new analysis is significant and suggests that the overarching policy goal should be to deliver net zero emissions alongside lower consumer bills.

¹ <https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>

² <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>

³ The cost excludes the investment that would otherwise have been spent on replacement heating.

This contrasts with low-carbon gas-led scenarios (for example, by the [CCC](#)⁴ and by [Navigant](#) and Imperial for the Energy Networks Association⁵). Current estimates suggest that the gas unit price would need to increase by a factor of 2-3 in the 2020-2050 period. Whilst some analysts think that the whole energy system cost *could* be broadly similar, there is a risk that the cost to consumers would be higher.

1.3. Lowering costs by insulating homes to “C” by 2030

Lower energy bills could largely be delivered by improved fabric standards (loft or wall and floor insulation along with draught proofing) so that lower energy inputs are needed, and buildings can retain heat for longer.

Energy Saving Trust view is that all homes should be improved to an energy performance certificate band ‘C’ level by 2030 – this is five years ahead of the current government target. Currently two thirds of homes (16 million in England) are below this level. [Analysis](#) by the Energy Efficiency Infrastructure Group, [EEIG](#) (of which Energy Saving Trust is a member), suggests that this would save around £6.4 billion per year (an average of £400 per household) and support 200,000 jobs⁶.

As well as reducing energy costs now, these homes would be better able to take advantage of opportunities to lower energy demand and therefore energy costs in a future, largely electrified energy market. This would include shifting demand patterns and ‘pre-heating’ homes so that electricity usage could be avoided during more expensive ‘peak’ periods. CCC modelling suggests that 25 percent of households operating their heating in this way would save £0.4billion each year. If all households with heat pumps did this however, the savings would be over £2 billion a year.

1.4. A long-term ‘enabling policy framework

As highlighted in the Treasury report (and assumed by the CCC modelling), the overall level of investment (and the proportion met through public rather than private investment) is highly dependent on the policy framework. Providing certainty and stability around energy policy should contribute to reducing investment costs, and therefore lower costs for consumers. The transformation of the power market and dramatic reduction in offshore wind costs highlights the impact that a certain policy environment can have. A recent report (for the CCC) suggests that the clear, long-term

⁴ <https://www.theccc.org.uk/wp-content/uploads/2018/11/Hydrogen-in-a-low-carbon-economy.pdf>

⁵ <https://www.energynetworks.org/newsroom/energy-networks-unveil-plan-to-deliver-the-worlds-first-net-zero-emissions-gas-network>

⁶ <https://www.theeig.co.uk/news/starstarnew-reportstarstar-turning-stimulus-into-recovery-from-the-green-homes-grant-towards-a-resilient-net-zero-economy/>

policy framework here reduced investors' cost of capital from over 10 percent in 2010 to below 7 percent in 2020 – which was instrumental in securing the 20 percent reduction in (future) off-shore wind costs over this period.

1.5. Standards and regulation

Standards and regulation can play a similar role by incentivising housebuilders and landlords to invest. The phase-out date for conventionally-fuelled cars highlights how regulation can transform markets by sending a clear signal to market users to change their investment decisions. This can mean that by the time the phase-out date is reached, the regulation is largely unnecessary as the market has delivered the necessary changes.

Just as coal-powered generation has been largely eliminated well in advance of the 2024 phase-out date, the investment now flowing into the electric vehicle market suggests that cost parity with conventional vehicles will be reached before 2030. Given the significant operational savings that electric vehicles offer, conventional cars will look like an increasingly unattractive option⁷.

Learning from this experience, we suggest that minimum energy standards for all homes (at rent or sale) and phase-out dates for fossil-fuel heating (for new homes, off-grid homes and those connected to the gas grid) could stimulate an equivalent transformation in buildings.

An (earlier) phase-out date for fossil fuel heating in new build would significantly reduce the overall and public cost of meeting the government's new 600,000 per year heat pumps target. Whereas installing retrofitting heat pumps currently requires a subsidy, the lower capital cost of installing them in new build homes means that a subsidy is not required. Even where the additional capital cost is passed through to the house-buyer, the lower lifetime bills will outweigh the additional cost. Bringing the proposed phase-out date back to 2023 could bring forward between 200,000 and 300,000 additional heat pumps per year from new build with no subsidy required.

⁷ The CCC [2020]⁷ suggest that over an assumed 14-year lifetime, a typical medium-sized battery electric vehicle will save almost £1,000 in fuel costs. If taxes are included, then the cash value of the saving to the owner increases to around £6,700 (£2,200 over the first five years of ownership)

2. Who should pay for housing upgrades?

Broadly, we feel that the following principles the Government should apply when considering the liability homeowners could face for decarbonising their homes:

- i) It is reasonable for homeowners to finance the improvements where they:
 - Can afford to cover the upfront cost of the changes
 - Are likely to financially benefit (bill savings and or increased asset price)

- ii) Homeowners should be partly liable where they:
 - Can afford (part of) the costs
 - Are likely to realise (part of) the financial benefits

- iii) Homeowners should not be liable where they:
 - Cannot afford improvements (they are fuel poor or at risk of fuel poverty)
 - Are unlikely to realise the financial benefits whilst inhabiting the property
 - Are required to make changes to comply with relevant legislation.

We support the CCC's view that fuel-poor homeowners should be supported to upgrade their homes. This should be largely by grants (potentially supplemented by long-term loans if the repayment is significantly lower than the anticipated bill savings).

Where costs are affordable and the operational savings strong (which could apply to many homes with a favourable policy environment), the investments could be met by homeowners (as with standard refurbishment). This will particularly apply later in the 2020s as costs reduce and new models for financing retrofit become more widespread (for example, ['heat as a service'](#) where consumers avoid an upfront cost by committing to a heat supply contract).

Between 2010 and 2019, the amount invested by homeowners improving their homes increased from £27 billion to £32 billion per year ([CCC 2020](#)). This suggests that a proportion of homeowners can invest and would be willing to do so if net zero upgrades were viewed as both desirable and profitable.

The Coalition for Energy Efficiency of Buildings ([CEEB](#)), established by the Green Finance Institute ([GFI](#)) is identifying different approaches to support homeowners to make this investment. This includes mortgage-related finance such as mortgage extensions (additional loans to finance retrofit) and green mortgages (a lower-cost mortgage or higher loan where the buyer commits to retrofit or to buy a more efficient home with lower energy bills). The CEEB is also looking at alternative approaches such the property assessed clean energy ([PACE](#)) model which is widely used in the United States of

America. PACE is a long-term loan (for example 30 years) attached to the property or land value rather than to a borrower. In the USA, PACE repayments are made via other local taxes by subsequent owners. If similar style loans could be offered in the UK, at a low enough interest rate and a flexible timeframe, then in most cases they could be repaid using energy bill savings thereby avoiding any increase in costs for consumers. This approach could be particularly suited to sectors of the market where mortgaged-based borrowing might be more difficult – for example, for any of the following:

- Landlords where neither the rental revenue nor asset value will support investment
- First-time buyers without the financial headroom to increase borrowing threshold
- Home-owners with either low house prices and or high retrofit costs.

The requirement for an average £10,000 additional investment per home raises the question of ‘who pays?’ Equally important is not just who pays, but how are the costs distributed? This average cost also hides the *range* of investment that will be required. Whilst the costs could be far lower for some (for example, those in energy efficient homes or those deferring heat changes until costs become more competitive), for others (requiring expensive solid wall insulation / structural repairs or those who may need to move early to comply with regulation), the investment could exceed £30,000.

Consumer awareness on the changes needed are very low (less than half of households understand that gas boilers contribute to climate change⁸) – something the CCC identifies as a key constraint. What is clear however, (from the [UK Climate Assembly](#) initiative for example) is that whilst the public are willing to engage, what is required of them must be perceived as ‘fair’. The second expectation is of a personal benefit to acting. This view was expressed by a participant in research by [Citizen’s Advice](#)⁹ into consumer attitudes to low carbon heat:

“... I know it's going to save the environment, I get that. But, and this is going to sound a bit selfish, what am I going to benefit from changing this?” (Leeds, lower income).

The requirement for ‘fairness’ in the transition to net zero highlights that the conventional approach to financing energy retrofit (based on short-term energy bill savings) has limited applicability here. Whilst the CCC modelling suggests that the overall investment at a stock level will ‘payback’ (over a thirty year timeframe), a direct ‘payback’ to the householder may not apply to any of the following:

⁸ <https://es.catapult.org.uk/news/1-in-2-not-aware-of-gas-boilers-climate-impact-survey/>

⁹ <https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Taking%20the%20temperature%20-%20Consumer%20choice%20and%20low%20carbon%20heating.pdf>

- i) Homeowners moving house before they recoup the bill savings
- ii) Homeowners requiring measures without a direct payback where the measure can still be justified by the carbon savings (a public benefit)
- iii) Homeowners requiring measures without a direct payback where measure can be justified by avoided costs elsewhere in the energy system (network upgrades).

Since almost all homes will need investment, regardless of whether they stack up in a narrow payback sense, there will be issues of who bears this cost. In cases such as these, it will be perceived as 'unfair' if the commissioning property owner bears the whole cost. Whilst policy (such as minimum energy efficiency standards at sale or rent) can help to ensure that energy efficiency or low carbon heating is valued by the market, there could be residual risks. These could include where investment is not fully reflected in market values (due to high costs or local or more widespread depressed market prices) or if late movers need to invest to avoid a decrease in asset value.

As the benefits from retrofit are spread between current and future bill payers; wider energy system users and the public in general, it is appropriate to spread the investment to match this. We think that there are number of options that may be pursued here, individually or more likely in combination:

- i) Energy bill levies (the main approach used for power sector decarbonisation)
- ii) General taxation (by reallocating existing revenue/additional taxation)
- iii) Carbon pricing
- iv) Borrowing (government de-risking private investment/ borrowing directly)

The next section sets out our thinking on where it is reasonable for homeowners to assume these costs and where there is a case to distribute these costs more widely. The final section assesses the options for spreading the costs and highlights our view that the urgent need to scale-up action between now and 2030 justifies a more interventionist approach to support 'early movers' to act.

3. Investment by homeowners

Options for socialising higher cost retrofit packages include the following:

3.1 Levy-based approaches

The UK has largely funded its successful transformation of the power by energy bill levies. [Ofgem](#)¹⁰ estimate that in 2019, £150 of the average £1,170 energy bill in 2019 was due to the levy package (which funds a range of environmental and social programmes).

Whilst this has increased bills, it has been justified on the grounds that:

- i) As it sits mainly on electricity, it has a limited impact on heating affordability
- ii) The extra cost is outweighed by the average decrease (in real terms) in bills since 2008 delivered by levy-funded energy efficiency improvements

If this approach is used for heating (and to further decarbonise power¹¹), bills to 2030 and beyond would rise. This would have a regressive impact, with the costs falling disproportionately on lower-income households who spend a higher proportion of their income on energy costs. Energy costs can account for around 10 percent of income of the least affluent income decile compared with only 1.5 percent for the most affluent.

A levy-based approach is likely to increase the absolute and relative numbers of households unable to afford adequate heating. In 2020, around [10](#)¹² percent of households (2.4million) in England were classed as 'fuel poor'. It would also increase the wider impacts of unaffordable heating costs. This currently includes an estimated £1.4-£2billion annual cost to the NHS in England of treating conditions made worse by cold, damp homes and £2.3billion per year on helping households with heating costs.

Academic research by [Anne Owen and John Barrett](#)¹³ highlights the regressive impact of energy bill levies in their research. In 2019 for example, low-income households as a group, paid out more each year than they received in support, contributing £271 million in levy payments whilst only receiving £220 million worth of support. This is because only 17 percent of the current levy package (the Energy Supply Obligation and the Warm Homes Discount) is directed at low-income groups.

¹⁰ <https://www.ofgem.gov.uk/publications-and-updates/infographic-bills-prices-and-profits>

¹¹ The CCC suggest that consumer levy payments on low carbon electricity is likely to add costs to 2030, but fall shortly after (to reflect the recent shift in future renewable electricity prices below the wholesale price)

¹² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882404/annual-fuel-poverty-statistics-report-2020-2018-data.pdf

¹³ <https://www.tandfonline.com/doi/full/10.1080/14693062.2020.1773754>

The design of the new Green Gas Levy (to support an increase in biomethane blending into the gas grid, is particularly regressive as it subsidises a more expensive fuel and is applied as a flat-rate levy applied on a per-meter basis. This means that all users, including industrial users, will contribute equally regardless of consumption.

3.2 Taxation

Both the CCC and Barrett and Owen suggest that general taxation would be a more equitable route to funding climate change policies. Barrett and Owen suggest that if the current levy package were funded by taxation, the lowest income group would save £98 a year with the highest income group paying an additional £458. They note that saving £98 a year could make a significant difference for low income households whilst *'£9 a week for the households with the highest income is relatively small'*. In addition, the existing levy package deters households from switching to low carbon heating such as heat pumps by increasing the cost of electric heating. We think this cost should be removed from energy bills and paid for through general taxation.

Reallocating existing spend: The CCC's analysis suggest that there is scope for both the existing levy package and future costs to be met through generation taxation. This would require a reallocation of existing spend in this area and for the bulk of the investment to be passed through to homeowners, where appropriate. Whilst reallocating existing spend could be sufficient in the short-term, CCC analysis forecasts that an additional £3billion a year is likely to be needed in the late 2020s.

CCC [analysis](#)¹⁴ suggests that current exchequer spending in this area is around £5billion per year (0.25% of GDP) with further spending through government department budgets and research institutions. This includes £1billion per year on the Renewable Heat Incentive, grants for electric vehicles, and around £0.5 billion per year for environmental land management. Additionally, the government supports low-carbon energy through the levies on energy bills (paid by energy consumers), including around £10 billion per year for renewable electricity and £0.64billion per year for energy efficiency.

The CCC were unable to estimate the government spending represented by tax reliefs, such as reduced rates of VAT or exemptions. We feel that there is considerable scope to realign these. For example, energy consumption (regardless of the carbon content) is subject to a 5 percent rate of VAT whereas much energy saving or generating technology is charged at the higher rate of 20 percent (when installed). Similarly, whilst new build housing is subject to VAT relief, work to convert or improve buildings is not.

The CCC highlight the following revenue from environmental or related taxes:

¹⁴ <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf>

- £3 billion per year from carbon pricing instruments¹⁵
- £0.7 billion per year through landfill tax
- £28 billion from sales of petrol and diesel to road vehicles (road charging will be needed to replace this before 2030)
- £7 billion from Vehicle Excise Duty (as above)

A further example of how current spend could better align to net zero is the financial assistance used to help pensioners and low-income groups to meet the cost of their energy bills. These total £2.3billion per year in comparison to the £0.64billion spend used to upgrade their homes so that they have lower bills on a permanent basis (this excludes the current £2.3billion Green Homes Grant which was designed as stimulus spending). This is largely a continual 'end of pipe' approach to spending rather than a focus on ending the problem at source. The recent [Energy White Paper](#) has committed to improve the affordability of heating for low-income households by increasing the expanding the Warm Home Discount spend from the current £348m spend ([2019 20](#)) to £475 million per year (from 2022 to 2025/2026).

Whilst we commend the goal (and recognise the current difficulties created by the COVID-19 pandemic), this simply amplifies the end of pipe approach. We think the target group could be better supported with a comprehensive programme to ensure that all homes meet an adequate standard of energy efficiency. There would still be a need to support fuel costs for the most vulnerable in the intervening period but, as research by the CCC and the Committee on Fuel Poverty (2017) suggests, less than 10 percent of the £2billion financial assistance budget in England was received by households in fuel poverty. Better targeting of these measures could provide much more effective support for households. Citizens Advice argue that reform of the Warm Homes discount is long overdue, and any reform should also consider how the scheme can ensure a fair transition to net zero by protecting these groups from additional costs, and be clearer on how it can best complement other policies like the price cap and Energy Companies Obligation¹⁶. We think overall it should be feasible to support the fuel poor in the short term whilst working to secure lower bills.

3.3 Carbon pricing

A more consistently applied carbon price would drive decarbonisation. Currently, electricity, the lower carbon 'fuel,' is subject to both the bulk of the levy package cost

¹⁵ Climate Change Levy, a levy on the fossil fuel content of fuels; Carbon Reduction Commitment, a Government energy efficiency scheme and auctioned allowances under the EU ETS

¹⁶ <https://www.citizensadvice.org.uk/about-us/policy/policy-research-topics/energy-policy-research-and-consultation-responses/energy-consultation-responses/citizens-advice-response-to-beiss-warm-home-discount-scheme-2021-to-2022-consultation/>

and a passed through carbon price¹⁷ whereas other heating fuels are not subject to a carbon price. Because the levy package and carbon price increase the relative cost of electricity to the consumer, it is a barrier to the uptake of efficient, low-carbon electric heating such as heat pumps. We think this needs urgent attention. We also recognise the potential value of carbon pricing as a way to raise revenue to support the investment required for homes. The [Zero Carbon Commission](#) for example, estimates that carbon pricing could raise up to £27 billion per year by 2030.

As a consumer-focussed organisation however, our view is that any changes here should not affect heating *affordability*. It should be possible to disincentive fossil-fuel heating (via a carbon price) whilst not reducing heating affordability if upgrading all homes to an adequate standard were an integral part of the scheme and the initial priority for investment (alongside financial compensation for low-income households affected in the intervening period). If taking this approach, the Government should seek to mitigate any impacts on fuel poor households during the transition.

3.4 Homes as national infrastructure

The CCC finding that the cumulative energy bill savings could more than outweigh the total investment costs by 2050) suggests scope for the government to treat homes as a 30-year infrastructure project (where capital could be raised leveraging very low debt rates, for example energy networks or water companies) with a similar need for ongoing capital investment in return for a stable revenue stream. This approach could make sense on from an economic perspective as borrowing rates are at an all-time low and investors are seeking long-term low risk investment opportunities. Similarly, government backing here could stimulate a £9billion additional investment per year, supporting 300,000 jobs and aiding economic recovery.

The proposed National Infrastructure Bank provides an opportunity to support the investment without a significant impact on government finances. The bank's remit includes both 'crowding-in' and de-risking private sector investment and helping to deliver on 2050 'net zero' emissions target. This suggests that it could help homeowners to meet upfront costs (via low-interest 30 year-loans that could be repaid partly or wholly through the energy bill savings).

The CCC highlight that delays in acting would add to the overall costs. Given the urgency of acting, the scale of change required and the synergies with other policy goals (jobs, levelling up, lower energy bills), there is a considerable opportunity in using the proposed National Infrastructure Bank to incentivise early action.

¹⁷ from the EU/UK Emission Trading Scheme and Carbon Floor Price schemes through apply to electricity generation

4. Engaging consumers

The ultimate challenge in this area is not securing the finance but persuading 29 million households to engage, to commission the work and then put up with the disruption. Without consumer engagement, the transition to net zero cannot happen by 2050.

A government-backed programme to help households 'net zero' their homes would reduce the financial barrier to action but beyond this however, there needs to be more consideration of tackling the non-financial barriers.

There is a significant risk that consumers will not engage – even where there is a financial incentive to act. Past experience shows that unless people understand what changes are needed in their home and are supported through the process. They will need to be assured that any financial instruments are fair and be willing to engage. To be effective policies in this area need to be well considered and resourced. Our own experience in supporting households in Scotland shows that where people receive support, they are not only more likely to act (and retrofit to a higher standard) but they are more willing to use personal finance rather than receiving government assistance. Citizens Advice's evidence also demonstrates the importance of a good customer journey for encouraging consumer engagement¹⁸.

Consumers will have to understand and buy-in to the need to change. It is vital that policy makers continue to engage consumers to understand their views. Direct consumer engagement will help to understand the attitudinal and behavioural challenges that lay ahead to achieve the transition, including the key areas on how to communicate the need for change. The UK Climate Assembly¹⁹ has been an encouraging development which has delivered valuable insight. But this is just the start, further engagement from policy makers will be required throughout the transition to understand the challenges and barriers faced by consumers.

¹⁸ [https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Lessons%20for%20net%20zero%20-%20Discussion%20paper%20-%20What%20past%20energy%20efficiency%20and%20low%20carbon%20home%20improvement%20schemes%20tell%20us\(2\).pdf](https://www.citizensadvice.org.uk/Global/CitizensAdvice/Energy/Lessons%20for%20net%20zero%20-%20Discussion%20paper%20-%20What%20past%20energy%20efficiency%20and%20low%20carbon%20home%20improvement%20schemes%20tell%20us(2).pdf)

¹⁹ <https://www.climateassembly.uk/>