Bankers for NetZero

WPI ECONOMICS

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The retrofit conundrum

A report for Bankers for Net Zero

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About Bankers for net zero:

Bankers for Net Zero was formed in October 2019 with the aim of galvanising credible, demonstrable leadership from the UK banking sector on climate change. The initiative brings together banks, businesses, policymakers and regulators to define and implement the interventions needed to accelerate the UK economy's transition to net zero. The focus is strategic policy alignment. By creating clarity on which areas of the net zero transition require policies which can optimise the contribution banks can make to the real economy, Bankers for Net Zero enable both policymakers and banks to play their part in accelerating the transition to net zero. Banks participating in the initiative include the British Business Bank, Barclays, Santander, HSBC UK, Allica Bank, Clear Bank, Handelsbanken, Oak North, Paragon, Coventry Building Society, Triodos, Ecology Building Society and Tide.

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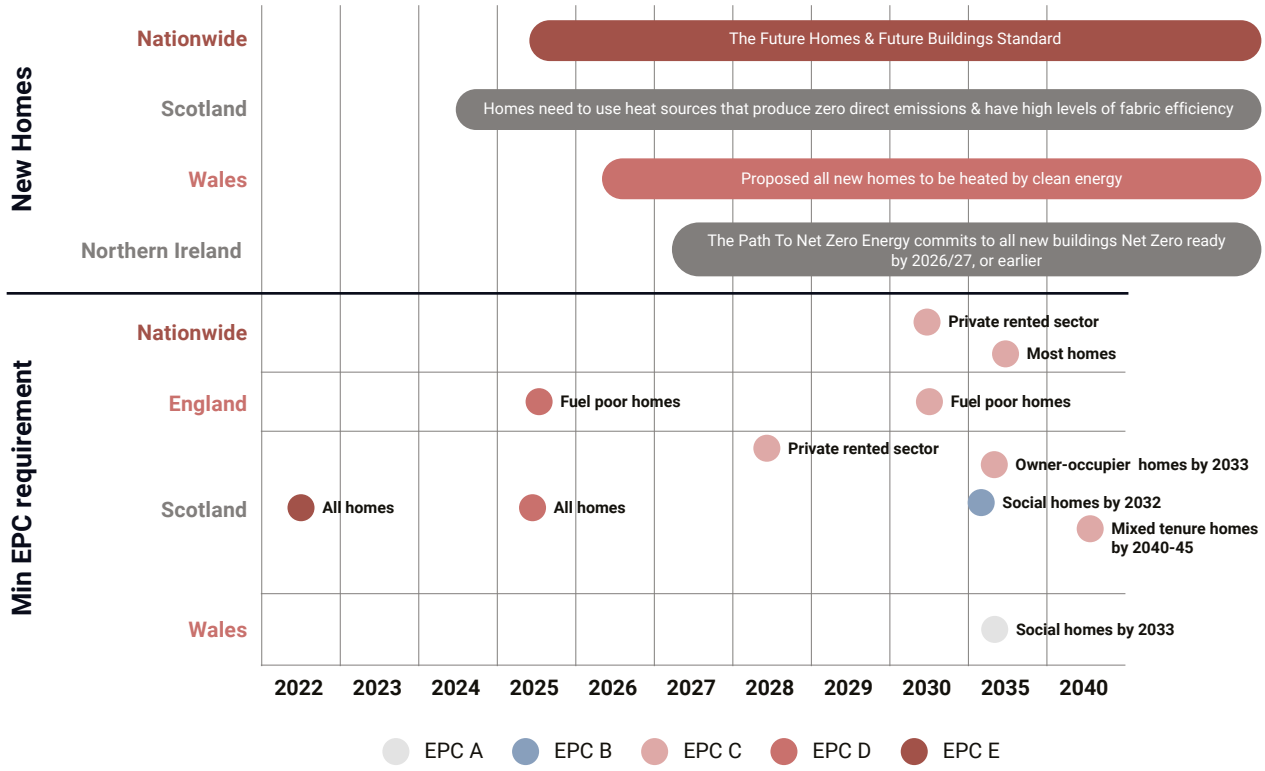
Executive Summary

Significant societal, technological and economic changes will be necessary if the UK is to meet its climate targets in the coming decades. The UK will be unable to meet its targets to cut emissions by 67% by 2030, 78% by 2035, or net zero emissions by 2050, if it does not quickly make significant progress in decarbonising emissions from buildings.

In contrast to sectors such as power, the built environment has seen a stasis of progress in emissions reductions in recent years. As previous reports have highlighted, this is largely the result of a delivery gap where the policy drivers to affect change in this space are lacking in practice.[1] As this report discusses, the levels of ambition and policy for home decarbonisation vary significantly depending on which part of the UK you live in (see below). There is a related but discrete challenge to reduce emissions from commercial buildings, which is being addressed as part of other workstreams.[2]

Figure 1: Energy efficiency across the UK[3]



We welcome that Government has embraced the need to reduce home energy demand and its proposal for a Taskforce. As the Government rightly notes, energy efficiency is key, not just for achieving our climate goals, but also because delivering our buildings emissions targets can help provide a range of significant co-benefits, these are summarised in the table on the next page:

Table 1: Co-benefits of greening the building stock

Co-benefit	Description
Green jobs	Employment in the construction sector could increase by around 13% as a result of a retrofit programme adding 350,000 to total employment in 2028, in a whole range of roles including labourers and project managers.[4]
Lower bills	Potential for £555 reduced expenditure on energy bills per year from basic energy efficiency measures.[5]
Better health	Reducing fuel poverty and cold living conditions could prevent 10,000 excess winter deaths, in turn saving the NHS between £1.4 to £2 billion annually.[6]

There is significant work happening through collaborations between a broad range of government, financial sector, real economy, and third sector stakeholders to demonstrate in practice how the present policy and delivery barriers can be overcome. These initiatives point to the need for action across three pillars:

Financing – currently, the business model to support household retrofitting is not present for the vast majority of households, with different approaches needed based on tenure. This is a result of a combination of the upfront cost of retrofit combined with the usually lengthy payback periods, although these may have been shortened by the impact of the energy crisis. Public-private collaboration driven by Government intervention is needed to address this. Detailed policy work by the sector has considered the role that a stamp duty-based incentive can play in boosting take up of energy efficiency and low carbon heating.[7] Furthermore, enabling property linked finance, as currently being trialled in Greater Manchester (Page 19), will help build the business case for households to invest in energy efficiency where the payback period is currently longer than likely tenancy. We recommend the Government set out to make both of these policy innovations a reality.

Governance – there is increasing consensus that net zero delivery requires a strong local dimension.[8] Regional and local government have significant advantages in terms of local networks and convening power, ability to tailor solutions to local characteristics, and scale to coordinate interconnected aspects of the green transition (e.g. grid investment and electrification of heat). Furthermore, tools such as Local Area Energy Planning can support local authorities to deliver net zero at a significantly lower cost than through national delivery. There is a need to ensure local and regional governments have the tools and funding to realise the benefits of local delivery, and support for innovative approaches, such as in the West Midlands, which can then be scaled across different areas of the UK, leveraging private finance to support this through a range of tools. There is also a strong local dimension to addressing key skills challenges in the retrofit space, with local government playing a key role through Further Education (FE) colleges and Combined Authorities through the Adult Education Budget (AEB).

Empowering households – the most recent BEIS public attitudes survey suggests that around three quarters of households have either never heard of an air source heat pump or know little or hardly anything about them.[9] Beyond this simple awareness point, there is also little understanding around the steps that one would take to set about retrofitting one's home, nor do people feel they have access to trusted and relevant local suppliers and contractors. Ensuring trusted advice and guidance is relayed to consumers through intermediaries such as banks is key, as are local networks to guide people through the process, as delivered effectively through Cosy Homes Oxfordshire. Banks should take forward work to build their presence as potential advisers in this space, working with specialist partners to help shape and deliver advice where appropriate. Advice and guidance delivered through the private sector should always be aligned to Government campaigns, including the recently announced campaign around reducing home energy use, which this report welcomes.[10] In addition to improved access to guidance and information, proper quality assurance of installation and the wider retrofit supply chain are also required here.

Underpinning these is a need for a focus on a 'just transition' approach from Government – for net zero to be delivered in a way that is fair and does not exacerbate existing inequalities. Within retrofit, this means that all households should be able to realise the benefits of a greener building stock, which for vulnerable households will mean the full funding of retrofit by Government.

In addition, there is a need for long term policy certainty to support delivery by all actors in the system. One of the key issues within domestic retrofit has been the lack of consistent policy direction over time. In contrast, in the renewables space we have seen with Contracts for Difference (CfD) that long term policy pursued for over a decade across multiple governments has supported private finance to significantly bring down the cost of low carbon technology, delivering cheaper clean energy for UK households and businesses. Piecemeal reform and discrete interventions can only deliver so much – a long term coherent policy agenda is required to unlock the potential of private finance in greening our homes.

The Government has rightly set out that it will convene a taskforce to take the lead on shaping the delivery of an energy efficiency agenda, in order to reduce emissions and strengthen the UK's energy security. It is crucial that this taskforce considers closely the importance of retrofit, possibly through a specific retrofit subgroup if needed. We would suggest this taskforce be led by a senior private sector figure and involve key finance sector stakeholders such as Bankers for Net Zero, Green Finance Institute, UK Finance, UK Infrastructure Bank as well as devolved Government, the energy sector, environmental charities, housebuilders and housing associations. It needs to take a cross government approach to this issue, bringing together key departments including HM Treasury.

We recommend that this taskforce focuses on four key areas.

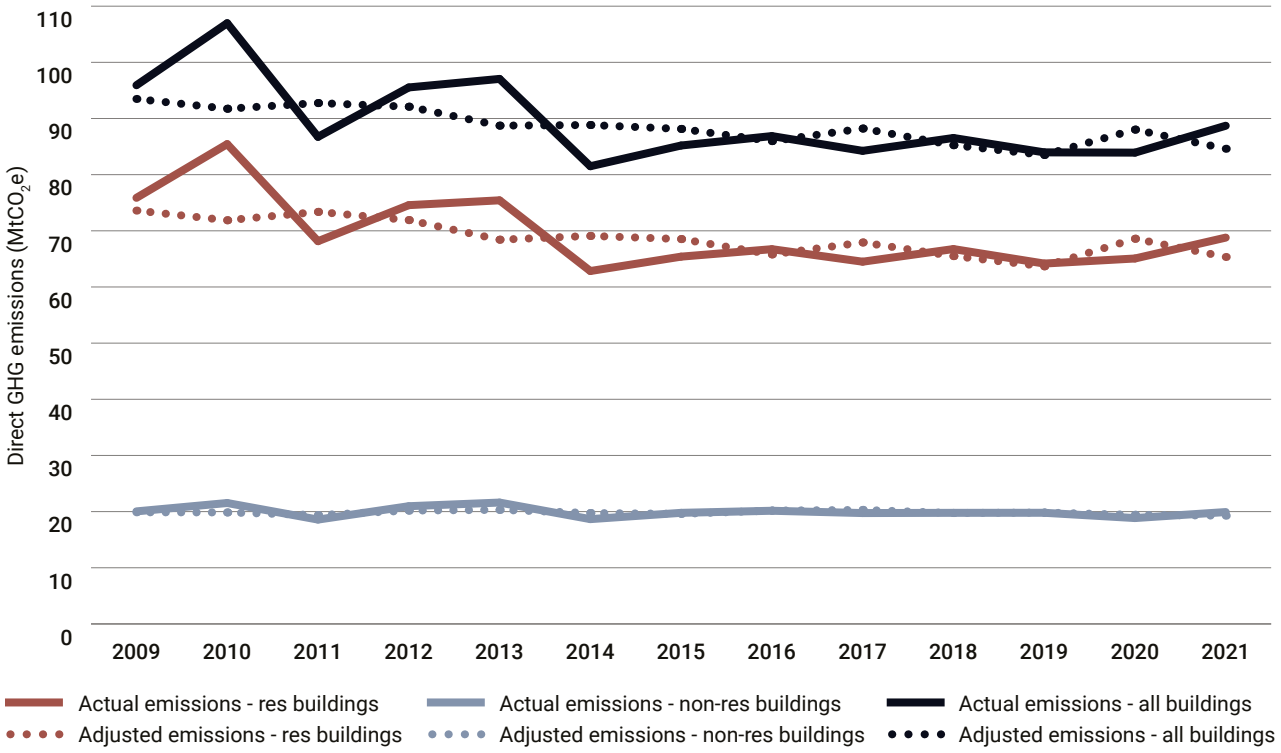
- Policy
- The role of finance
- Consumer education
- A trusted supply chain

CHAPTER 1

Introduction

The decarbonisation of buildings represents one of the greatest challenges in addressing climate change. Buildings are one of the largest sources of emissions according to the Climate Change Committee (CCC), and emissions associated with them remain largely unchanged since around 2015.

Figure 2: Emissions from buildings over time



Source: CCC

As shown by the graph above, the non-residential buildings stock makes a substantial contribution to overall emissions, and an effective approach to tackling emissions in this sector has been explored in detail elsewhere. The domestic buildings sector has a larger share, and that is the focus of the analysis within this report.

Looking across its 28 million homes[11], the UK has the oldest and least energy efficient housing stock in Europe. Over 52% of England homes were built before 1965 and about 20% before 1919.[12] Meanwhile, more than 80% of homes in the UK are using gas boilers, making them susceptible to a spike in gas prices.

Many of the lower-cost, easier-to-install energy improvement measures, such as cavity wall and loft insulation, have already been adopted by a majority of households. At end-2020, 70% of properties with a cavity wall were insulated, and 66% of properties with a loft had loft insulation.[13] Meeting the UK's ambition of net-zero by 2050 will require government plans and policies that can promote deeper retrofits. This will involve a significant scaling up of both energy efficiency and low carbon heating.

In addition to getting the UK on track to meet its climate targets, there are a range of co-benefits attached to improving the energy efficiency of the UK's housing stock, summarised in the table below.

Table 2: Co-benefits of greening the building stock

Co-benefit	Description
Green jobs	Employment in the construction sector could increase by around 13% as a result of a retrofit programme adding 350,000 to total employment in 2028, in a whole range of roles including labourers and project managers.[14]
Lower bills	Potential for £555 reduced expenditure on energy bills per year from basic energy efficiency measures.[15]
Better health	Reducing fuel poverty and cold living conditions could prevent 10,000 excess winter deaths, in turn saving the NHS between £1.4 to £2 billion annually.[16]

In addition to the UK's national climate targets, banks are in the process of putting in place targets to address the emissions associated with their lending. This is known as their 'Scope 3' or financed emissions. For many retail banks in the UK, mortgages are by far the largest source of lending, and so much of their financed emissions relate to heat and buildings. As a result, supporting the UK's building stock to decarbonise is a key strategic priority for individual banks, as well as for the sector as a whole. Banks can play a number of important roles in supporting decarbonisation, as we will go on to describe.

Bankers For Net Zero is focussed on how to drive the strategic policy alignment which can help to deliver the shared climate objectives of the banking sector and wider society. This report sets out how policy can unblock the recent stasis in emissions reductions in the UK building stock, so that the full potential of banks to support decarbonisation can be realised.

CHAPTER 2

Decarbonising homes across the UK

In order to restart the UK's progress in reducing emissions associated with the building stock, Governments across the UK have put in place a range of policies to support deeper retrofitting of homes. As we will go on to describe, the scale of ambition and delivery within these policies vary considerably in different parts of the UK.

Financial incentives

On the financial front, the UK has set up a number of subsidy schemes, which include:

- **Energy Company Obligation,** which is worth £4 billion[17], requires obligated suppliers to fund the installation of energy efficiency measures in low-income, fuel poor households. The target energy companies are required to meet is based on their domestic market share. The fourth phase of the scheme (ECO4) runs from 27th July this year to 31st March 2026[18]. The UK Government recently announced an £1 billion 'ECO plus' extension to widen funding availability to less energy efficient homes in the lower Council Tax bands
- **Boiler Upgrade Scheme,** which has replaced the Renewable Heat Incentive[19] and is worth £450 million spanning from 2022 to 2025, is designed to grant homeowners up to £6,000 to install heat pumps and biomass boilers in England and Wales[20].
- **Green Deal,** which is available for households with an electricity meter in England, Scotland or Wales. It is a loan, where repayments are made through electricity bills. Applicants can use the loans for a range of energy saving measures if the Green Deal assessment recommends them, and the Green Deal stays with the property[21]. Public investment was withdrawn with poor homeowner take-up, but it is still available through private companies, although the extent of take up may be very limited.[22]
- **Social Housing Decarbonisation Fund,** £3.8 billion of funding over 10 years from 2021/22, to upgrade social housing properties up to EPC level C standard, delivered through a bids process.[23].

In addition, there are a series of financial support packages for the nations within the UK:

- The **Sustainable Warmth Competition** funds local authorities in England to upgrade homes of low-income households. This includes Local Authority Delivery Scheme, a £500 million funding opportunity to upgrade homes with an EPC rating of D or lower[24]; as well as Home Upgrade Grant, to which the government has allocated £1.1 billion until March 2025 (compared to the manifesto commitment to a £2.5 billion[25]). The Home Upgrade Grant is aimed to fund low-income homeowners for upgrading their off gas-grid homes ranging from EPC Bands D to G[26].
- Wales has rolled out the **Nest scheme**, which provides free advice for everyone, and free home energy efficiency improvements for eligible low-income households in owner-occupied or private-rented homes[27].
- Northern Ireland has the **Affordable Warmth Scheme**, where low-income households in owner-occupied or private-rented homes can receive up to £10,000 for home upgrades. In addition, the Boiler Replacement Scheme provides homeowners with a gross annual income of less than £40,000 with a subsidy equalling the cost of replacing their boilers if the boiler is more than 15 years old[28].
- Scotland has launched **Warmer Homes Scotland**, a national fuel poverty programme in the private sector. Additionally, it provides interest-free loan funding of up to £38,500 and cashbacks to owner occupiers through the **Home Energy Scotland Loan**[29] and private sector landlords through the Private Rented Sector Landlord Loan[30]. In addition, the **Home Energy Efficiency Equity Loan Pilot** was launched in 2017 and is designed for private landlords with up to two properties in certain areas of Scotland to borrow up to £40,000 to improve the energy efficiency of their home[31]. The Scottish Government is now considering scaling up to a nationwide scheme[32]. Scotland also

funds local authorities in the **Home Energy Efficiency Programmes for Scotland** (HEEPS): Area Based Schemes Loan scheme in areas with high levels of fuel poverty mainly for solid wall insulation. There is also HEEPS: Loans (Registered Social Landlords Scheme) that provides loans from £100,000 to £1 million repayable over up to 10 years[33].

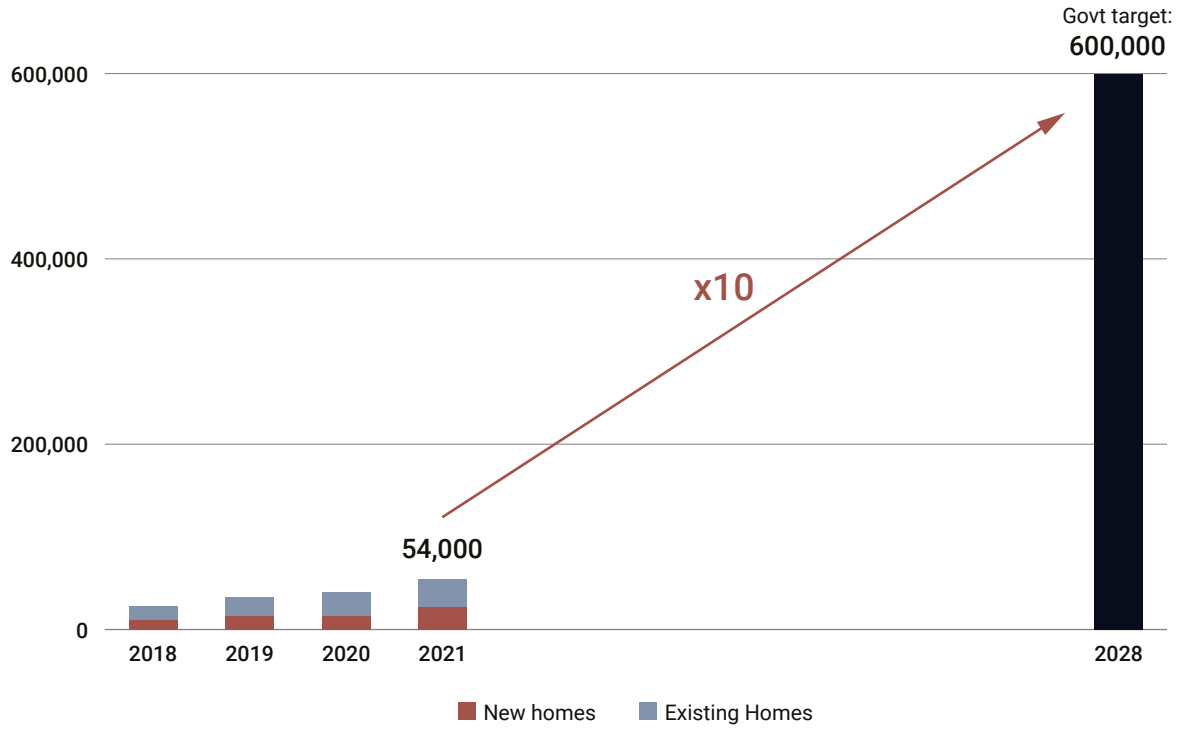
These financial support schemes are different in various ways, but they have in common the objective of strengthening take up of two key tools to support domestic building decarbonisation (a) low carbon heating and (b) energy efficiency, which are both considered in the following sections.

Low carbon heating technology

Heat pumps have been credited by the UK and devolved governments as the major low-carbon homes heating technology of the future.[34] Heat pumps use refrigerant to transfer heat from the ground or air to homes, and are typically three to four times more efficient than gas boilers.[35] The current strategy for the UK government is to encourage the use of heat pumps, instead of a mandatory phase-out of fossil fuel boilers. It plans to issue supply side interventions to place an obligation on boiler manufacturers to sell a rising proportion of heat pumps. In its October 2022 consultation paper, it proposed a 'heat pump first' approach for homes which are off the gas grid from 2026 in England. However, there is still confusion as to the full extent that heat pumps will play in future heating, given that the government is also mulling a shift to new domestic gas boilers to be hydrogen-ready.[36] Scotland is active on this front: it aims to phase out new or replacement boilers in homes which are off the gas grid from 2025.

However, despite existing policy support, only 54,000 heat pumps were installed in 2021, compared to the government target of 600,000 every year by 2028. Heat pumps require greater support to reach their potential in the UK, and some of the key policy drivers which need to be in place are highlighted in the final chapter.

Figure 3: Annual residential heat pump installations



Source: CCC

Hydrogen as an alternative clean energy source is also being explored in the UK. Currently, hydrogen is a live option for homes decarbonisation and its role in home heating will be determined in 2026.

- The UK Government has committed up to £300 million until 2024 for pilot programmes and innovation schemes. Ofgem will announce in 2023 whether Whitby (Ellesmere Port) or Redcar will be the location for the 'Hydrogen Village Trial' which will commence in 2025 and last for two years. A 'Hydrogen Town Trial' has also been earmarked to begin in 2030, with an invitation for initial proposals of interest published in October 2022. While not decided policy, the Government has indicated they will publish a consultation on mandating hydrogen-ready boilers in domestic settings by 2026.[37]
- Scotland has published a draft Hydrogen Action Plan, outlining the actions of more than £100 million for the next five years to drive Scotland's hydrogen production capability to meet 15% of its total energy demand by 2030[38].
- Wales has launched its £2 million Welsh Hydrogen Business Research and Innovation for Decarbonisation (HyBRID) initiative to invest in a spectrum of feasibility and front end engineering design stage demonstrating projects across Wales[39].
- Northern Ireland has set out plans to create a 'Hydrogen Catapult', a hydrogen research and innovation centre in partnership with academia[40].

Hydrogen remains a live option for home heating decarbonisation. However, significant concerns have been raised in relation to its suitability as a solution, due to its cost and inefficiency relative to heat pumps. A peer review of 32 independent studies by the Regulatory Assistance Project found that none contained clear support for a widespread role for hydrogen in domestic heating, with significant issues around energy system costs, consumer household heating costs, and environmental impact.[41]

Figure 4: Heat pump and hydrogen policy across the UK

Heat pumps	Nationwide	England	Scotland	Wales	Northern Ireland
Homes off gas grid		Proposed in Oct a 'heat pump first' approach in homes off the gas grid from 2026	Aim to phase-out new or replacement boilers in homes which are off the gas grid from 2025		
All homes	Will place an obligation on boiler manufacturers to sell a rising proportion of heat pumps			No plans for a fossil fuel boiler phase-out	Will take into account heat pump requirements
Hydrogen	Committed up to £300 million until 2024 for pilot programmes and innovation schemes; the 'Hydrogen Village' trial which will take place by 2025		Published a draft Hydrogen Action Plan to lay the groundwork to enable hydrogen as a heat source in buildings	Launched their Welsh Hydrogen Business Research and Innovation for Decarbonisation initiative to invest in innovative hydrogen projects	Set out plans to create a 'Hydrogen Catapult', a hydrogen research centre in partnership with academia

Sources: Department for Business, Energy & Industrial Strategy ; Department for Levelling Up, Housing and Communities; Green Finance Institute; Climate Change Committee (CCC)

Meanwhile, governments have made efforts to expand heat networks by setting up a Green Heat Networks Fund for England and Wales and Heat Networks Investment Programme. It has also named Ofgem as the GB heat networks regulator. However, the current approach is irregular across the country, with various levels of ambition. England proposes to allow local authorities to designate Heat Network Zones and Wales highlighted priority areas in its National Plan 2040. On the other hand, Scotland has put forward the Heat Networks (Scotland) Act 2021 to introduce mandatory connections for large and publicly owned buildings, and to de-risk investment in heat networks.

Minimum standards

Minimum standards for energy efficiency will also be raised in the future across the UK, and within each of the four nations, in order to deliver the emissions savings needed to achieve the UK's climate target. Again, these vary significantly by nation.

For instance, with regard to new homes:

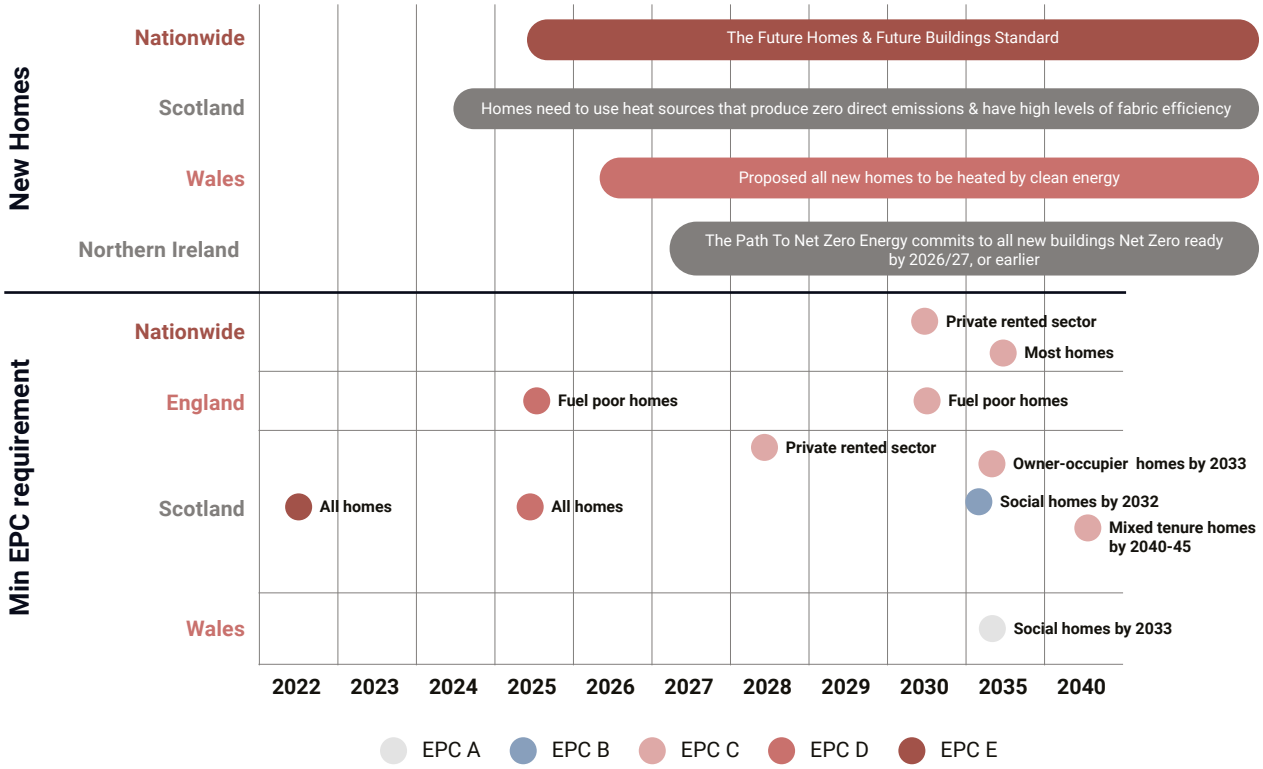
- In England, the Future Homes & Future Buildings Standard for new homes will be adopted nationwide from 2025. Under the Future Homes Standard, new homes must be about 30% lower in emissions than current standards by 2025.
- From 2024 new homes in Scotland will be required to use heat sources that produce zero direct emissions and have high levels of fabric efficiency.
- Wales intends all new homes to be heated by clean energy from 2025.
- In Northern Ireland, The Path To Net Zero Energy commits to all new buildings becoming Net Zero ready by 2026/27 or earlier, if practicable.

Beyond new homes, the nations of the UK have implemented various plans to have minimum standards for the EPC rating for different types of property, whether private rented sector, social housing, or owner occupied. Across the UK, these standards vary significantly:

- Nationwide, the private rented sector needs to be at least EPC C by 2030; most homes to achieve EPC C by 2035. There is however a cost limit for landlords in the proposed rules. The Government previously consulted on introducing a 2028 deadline for all private tenancies to be EPC C, and new tenancies by 2025, but this is not yet confirmed policy.[42]
- In England, all fuel-poor homes need to be at least EPC D by 2025 and EPC C by 2030.
- In Scotland in particular, a minimum EPC level C is needed for the private rented sector by 2028; a minimum of EPC level C in owner occupied homes and mixed tenure homes by 2033 and by 2040-2045 respectively. A minimum EPC level B is needed within social housing by 2032. All fuel poor homes are to reach EPC level C by 2030 and EPC level B by 2040.
- Wales plans to bring all social housing as close to EPC A as possible by 2033. They are also continuing the Warm Homes Programme, which installs energy efficiency measures and new (often fossil fuel) heating for fuel poor households, until 2023.

It should be noted that, except for Scotland, there are a lack of policies for energy efficiency in non-fuel-poor owner-occupier households. Moreover, in England, there is no target date for a minimum EPC standard in social housing.

Figure 5: EPC standards across the UK



Sources: Department for Business, Energy & Industrial Strategy ; Department for Levelling Up, Housing and Communities; Green Finance Institute; Climate Change Committee (CCC)

Policy is being developed across several areas to deliver the required emissions across the building stock, and these will make a contribution to meeting the UK's climate targets. In addition to policymakers, banks will play a vital role in supporting home decarbonisation. As discussed, further policy changes can help realise the potential of banks and other stakeholders to support the changes necessary in this space.

CHAPTER 3

The role of banking

Banks have an important role to play in helping the UK reach net zero, particularly through the decarbonisation of the domestic building stock, provided the key policy drivers to facilitate this are in place. As banks develop and release their Transition plans, setting out their approach to meeting the Net Zero Banking Alliance Commitment, a key consideration will be the steps needed to reduce emissions associated with key exposures, such as the building stock.

If we are to be successful in reducing not just banks' Scope 3 emissions, but the emissions of the UK as a whole, it is essential to deliver these targets through meaningful decarbonisation of the building stock across the board. A policy framework to support building decarbonisation is therefore imperative to support banks in meeting the targets they have set out. It is the overwhelming view of stakeholders we spoke to for this report that the lack of policy in place to support retrofit is the largest barrier to meeting emissions targets, and the final chapter discusses an overarching set of proposals to address this.

The added value of banks

Appropriate access to finance can be an enabler of domestic retrofit, with the right policy and wider environment. High upfront capital costs and slow rates of recovering the costs through savings on energy bills make it a daunting undertaking and this would prevent many property owners from retrofitting. Given this challenge, banks have a pivotal role to play in the retrofit process. At present, there will be understandable household reticence to take on additional debt during a cost-of-living crisis.

Given one of the crucial roles of banks is to provide mortgages and other loans related to property, they are an integral part of the transition to net zero. Concerted efforts towards preparing the UK's built environment are needed to meet emissions targets in time. In turn, banks will also need to constantly adapt their approach to product and service delivery.

On the opportunity side, housing finance is the largest segment of retail banking thus providing a wide platform for driving decarbonisation across the mass market of banking customers. However, a sole emphasis on lending or mortgage financing is not an effective way to resolve the broad societal issues that surround decarbonisation. This is not least due to the fact that around 35% of homes in the UK are owner occupied and mortgage free, and that landlords are usually unable to recoup investments they make in properties through a reduction in bills. Policy will need to play a significant role alongside other key actors in the system, such as homebuilders, who can play an important role in retrofitting.

The role of regulation

The environmental and sustainable aspects of loans are relatively new to the sector and its regulators and hence, increased efforts are required to meet all targets. Furthermore, green finance to support retrofit is a rapidly evolving space for regulators such as the Financial Conduct Authority and Prudential Regulation Authority, requiring them to adapt their approach on an ongoing basis. Key emerging regulatory frameworks, including those around the consumer duty and ensuring adequate capitalisation for climate risks, require effective engagement between banks and their relevant regulators to ensure the delivery of decarbonisation strategies.

What can banks do?

There are a number of key actions banks can take to support delivery against carbon targets. Some of these include:

- Create products, tools and guidance that support householder retrofit.
- Increase collaboration with other organisations and civil society organisations to further the retrofit agenda and devise innovative methods for mobilising finance for retrofit. For example, Coalition for the Energy Efficiency of

Buildings as part of the Green Finance Institute, as well as Bankers for Net Zero, the UK Infrastructure Bank (see below), Green Buildings Council and UK Finance.

- Integrate net-zero targets, climate change effects and energy efficiency into the considerations for mortgages and other housing finance. For example, several UK banks now offer a green mortgage product where the rates are discounted if the property is EPC A or B rated.[43] As discussed further on in the report, there is a need for policy to also support households who, due to reasons of affordability or viability, cannot increase their home's energy efficiency to this level.
- Introduce green bonds at a larger scale catered to specific activities such as retrofit, by partnering with local authorities.
- Create local place-based relationships in cities and regions to pilot financial innovations to support decarbonisation and bring down the cost long-term.[44]

Previous analysis by South Pole of the UK banking sector for Bankers for Net Zero examined the extent to which these steps are already happening across the sector. This is set out in the box below:

Table 3: Bank activities on retrofit

Real estate/retrofit key actions and targets	• The majority of the banks issue **green mortgage products**. • **Sustainability-linked bonds** from major banks in the UK offer mortgages targeted at homeowners to help them improve their energy efficiency rating. • A few banks have rolled out **tech-based tools** to support homeowner borrowing for retrofits, such as green building tools that enable energy efficiency measurements. • Most banks assess their mortgage and real estate portfolio for **climate-related risks**. • Most banks measure the **financed emissions** from their real estate portfolio and have set or are in the process of setting **targets** for their mortgages lending.

Source: WPI Economics and South Pole[45]

The supply side of the financial sector to support green retrofit is rapidly developing. Our feedback from experts and stakeholders is that the key barrier to growth in green finance to support the retrofit of the building stock is the lack of demand from homeowners for energy efficiency, and correspondingly the financial products that could support this. As a result, key policy drivers to strengthen demand must be in place to achieve the full potential of banks in decarbonising the building stock.

Schemes by Development Banks:

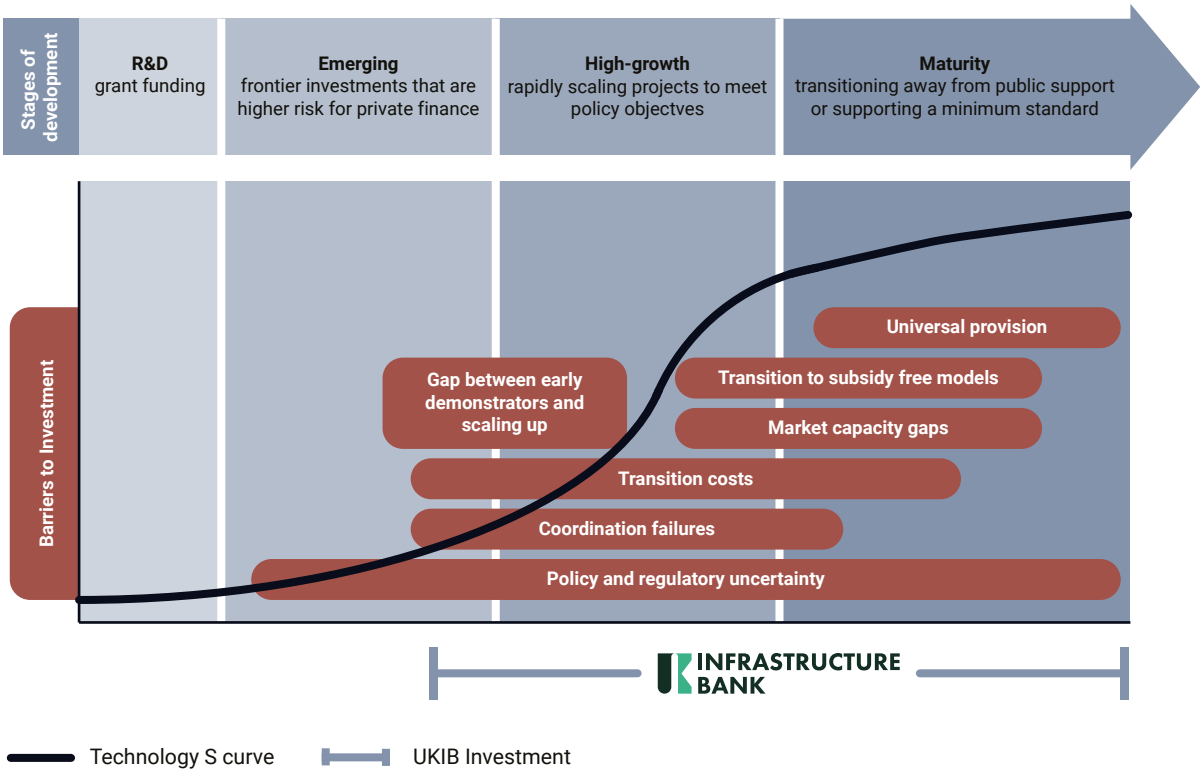
Globally, various investment and development banks are championing innovative ways towards increasing finance for green initiatives like retrofit. These institutions are crucial in providing finance through various modes. For example:

- The French development agency AfD spends about "US $600-700 million a year on credit lines for smaller energy efficiency projects".[46]
- The German KfW infrastructure bank has introduced the 'Efficiency House' or BeG scheme in the country. This entails the granting of low interest loans to homeowners to fund retrofit projects. It covers all aspects of energy efficiency and low carbon heating, with the size of the loan depending on the degree of improvement in comparison to a reference standard. It provides ease of implementation by covering all sectors of the built environment like residential, commercial and public sector buildings. Since its implementation, the scheme has provided funding for over 6 million homes and triggered investments worth EUR 480 billion on lending of EUR 180 billion.[47]

Closer to home, the UK Investment Bank (UKIB) and the Development Bank of Wales can play a critical role. UKIB has unveiled its strategic plan to invest £22 billion[48] for climate action and regional growth, with an emphasis on clean energy. Among the various sectors identified for investment, retrofit of buildings plays a prominent role. Much of this is earmarked

for supporting local authorities, and groups such as UK100 have set out how the potential here can be maximised.[49] The UKIB is designed to support finance initiatives beyond their initial development stage, including bridging the gap between demonstrator and scale up.

Figure 6: Role of UKIB in infrastructure investment



The role of the UKIB will be a vital component of the UK's homes decarbonisation strategy moving forward, supporting delivery by local government and de-risking private finance from banks and others.

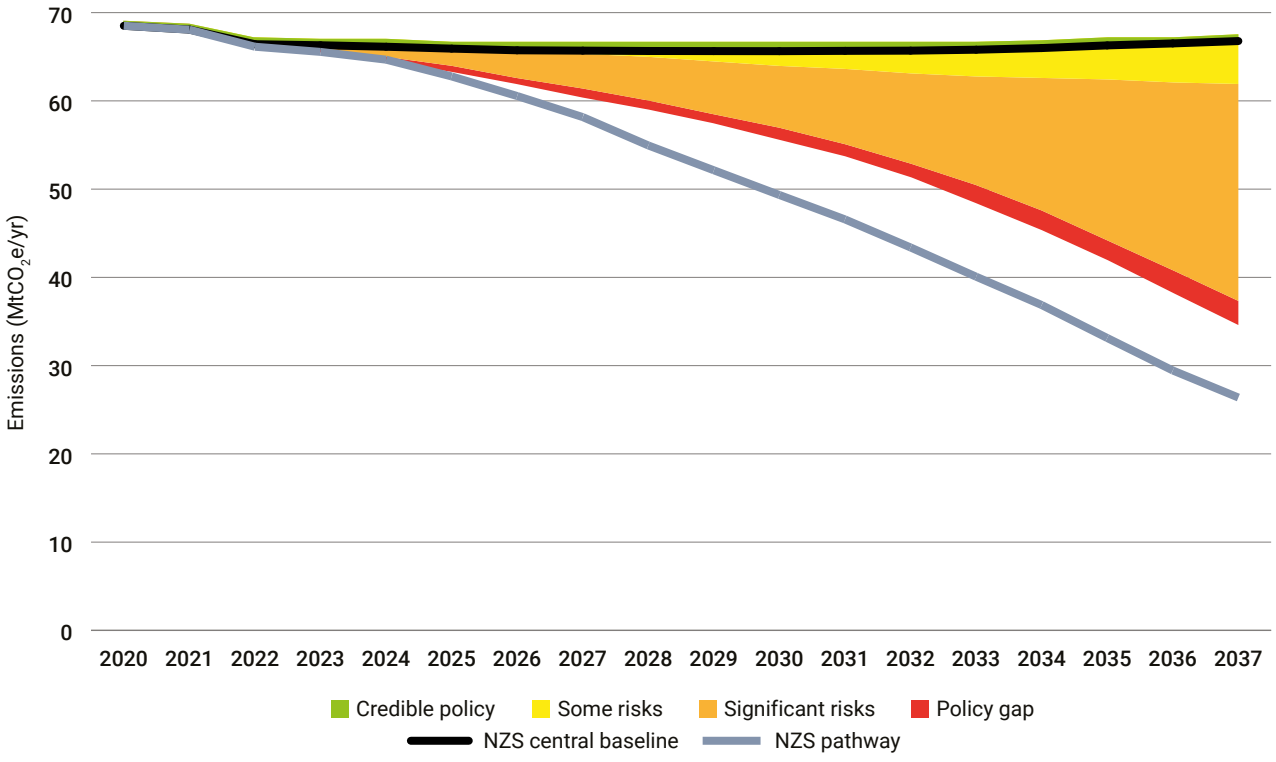
CHAPTER 4

Enabling finance through policy

As set out in the previous chapters, a range of public and private initiatives are currently in development across the UK to support the decarbonisation of domestic buildings. However, there is a significant policy gap in the UK at present, as set out by the CCC in the Sixth Carbon budget.

The graph below shows that the vast majority of the targeted emissions abatement in 2037 for domestic buildings are not supported by credible policy. To a large extent, this is driven by a lack of policy to support non-fuel poor homes, many of them owner occupiers, to decarbonise their homes through energy efficiency and low carbon heating. In addition, there is no clear policy to support the decarbonisation of much of the social rented sector, which is dominated today by housing associations (following chart).

Figure 7: Risk rating for emissions reductions from residential buildings policies in the Heat and Buildings Strategy



Source: CCC analysis of BEIS (2021) Net Zero strategy: Build Back Greener technical annex, BEIS (2021) Heat and Buildings Strategy and CCC (2020) The Sixth Carbon Budget: The UK's path to Net Zero.

Table 4: Policy assessment of residential buildings progress following the Heat and Buildings Strategy

Sub-sector	2021 CCC Progress Report	Heat and Building Strategy
Low carbon heat in non-fuel poor homes	Policy gap	Market-based mechanisms is the main delivery model, supported by (proposed) obligations on heat pump manufacturers and phase out dates for fossil-fuelled heat sources
Heat networks	Policy gap	Heat network funding until 2025 (Green Heat Networks Fund and the Heat Networks Innovation Programme). Funding for heat networks beyond 2025 is unclear, and zoning proposals need work.
New homes	Interim building regulations uplift likely to only deliver low levels of heat pumps	
	Future Homes Standard still needs to be finalised and implemented; no commitment currently to near Passivhaus levels of efficiency despite need to signal well in advance to allow time to upskill workforce.	
Energy efficiency in non-fuel-poor homes	Private-rented sector: proposals for minimum efficiency standards at the point of tenacy	
	Social-rented sector: no clear policy which would either support improvements in these homes, or incentivise homeowners to reach higher standards, has yet been announced.	
	Owner-occupied: policy gap	Mortgage provider obligation is the main delivery model. But this proposal is currently voluntary, and relies on EPCs, which brings problems. No proposals for regulations at point of sale.
Fuel poor homes	ECO 3 and ECO 4 fully funded and implemented.	
	Manifesto commitment to fund the transistion for fuel poor households.	Programmes which support low carbon heat and energy efficiency measures (Home Upgrade Grant, Local Authority Delivery scheme, and Social Housing Decarbonisation Fund).

Credible policy Some risks Significant risks Policy gap
NZS central baseline NZS pathway

Source: CCC analysis based on actions in BEIS (2021) Heat and Buildings Strategy, BEIS (2021) Net Zero Strategy: Build Back Greener and CCC (2020) The Sixth Carbon Budget: The UK's path to Net Zero.

[1] The Social Housing Decarbonisation Fund does not explicitly rule out providing finance to owner occupiers who are able to pay, particularly in mixed tenure settings, however the scheme is designed to prioritise fuel poor homes.

Further to the breakdown above, it is worth considering further the difference between the barriers faced by owner occupiers with a mortgage (28% of all dwellings) to those without (36% of all dwellings).[50] For the former, these are currently further within the spectrum of the banking sector's influence, and so can be better supported through policy that is designed to increase flows of private finance. For those without a mortgage, different policy levers may be needed.

The analysis above by the CCC pre-dates the Government's new commitment to address energy efficiency through a taskforce, as announced in the 2022 Autumn Statement. Banks can play a significant role, along with other stakeholders, in helping to achieve the Government's aims of reducing the emissions of the building stock. However, key policy drivers and consumer education initiatives need to be in place to unlock the potential of banks in this space. Furthermore, access

to trusted and appropriate tradespeople is also key. Our research has identified three pillars of change that are needed for an effective policy approach to unlock the role of banks in decarbonising the building stock.

Financing

At present, effective financial support for decarbonisation is not present for the majority of homes. According to the CCC, there is a significant policy gap for owner occupiers not in fuel poverty, which is around 60% of all dwellings. This is in contrast to policy for other cohorts, such as those in fuel poverty who are covered by the Energy Company Obligation (ECO)[51] although this is now being expanded to cover a subset of owner occupiers not in fuel poverty.[52]

The aim for policy should be, where possible, to support those households who are able to pay to retrofit their homes to a low carbon standard, with their investment returned over time through a reduction in their energy bills. Significant reductions in energy bills are possible, however, for many households this payback period is longer than average tenancy, meaning that they are unlikely to realise the financial benefits of the upfront investment, as demonstrated by the table below:

Table 5: Average retrofit costs to EPC standard and payback periods

EPC Rating	Installation Cost (£)	Energy cost saving (£/year, based on 2021 energy prices)	Payback (years)
D	£6,472	£179	36
E	£13,285	£594	22
F or G	£18,858	£1,339	14

Source: Onward[53]

The role of property linked finance could also be significant in unlocking finance for more households as it allows for longer payback periods. This is something currently being tested in Greater Manchester (Case study 1). We have seen evidence that payback periods have come down as a result of the dramatic rise in gas prices, with some analysis suggesting that a basic package of energy efficiency measures could have a payback period as low as 3 years for some homes.[54] Payback periods will vary depending on measures needed to improve efficiency of a property, as well as the extent to which the cost of materials required for retrofit has also been impacted by a rise in energy prices.

Case study 1: GMCA property linked finance trial

The Greater Manchester Combined Authority (GMCA) along with Green Finance Institute (GFI) have piloted a finance instrument called Property Linked Finance (PLF) to enable property owners to fund energy efficiency related improvements. The aim is to ultimately be able to upgrade the energy efficiency of 60,000 homes annually across the Greater Manchester region[55] with PLF and a package of other innovations. PLF is a loan that is linked to the property instead of the owner. This results in eliminating a key bottleneck called the "payback period barrier" where plans to move from the property in the near future deter homeowners from carrying out efficiency upgrades. Additionally, PLF has a lower risk of lending, thus allowing longer repayment terms and lower interest rates, closer to mortgage rates.

PLF has been successfully implemented in many countries, particularly the US, where it has enabled c.$10 billion investment[56] in energy efficiency projects, and can bring similar benefits to the UK. GFI has indicated that changes to legislation may be required to ensure PLF can work effectively in the UK.

In addition to getting the financing models right, upfront incentives have the potential to boost retrofit demand more quickly, provided they are effectively targeted to influence householder behaviour. Given the need to move quickly to scale the retrofit market and keep the UK on track to meet its ambitious near-term carbon targets, such as the Nationally Determined Contribution by 2030, we would argue that these incentives are needed in addition to financing models. Furthermore, by driving demand for low carbon solutions early, this is likely to reduce costs over time and therefore may support lower overall implementation costs for net zero in the longer term.

Detailed work by the sector, including GFI and UK Green Building Council, has suggested the potential of a variable stamp duty incentive to support take up, whereby stamp duty liability for a property varies based on its EPC rating.[57] This could support households financially to make changes at a point where they may actually be likely to make changes to their home (i.e. when they have recently moved in), while potentially being revenue neutral to HM Treasury over the life of the policy.[58]

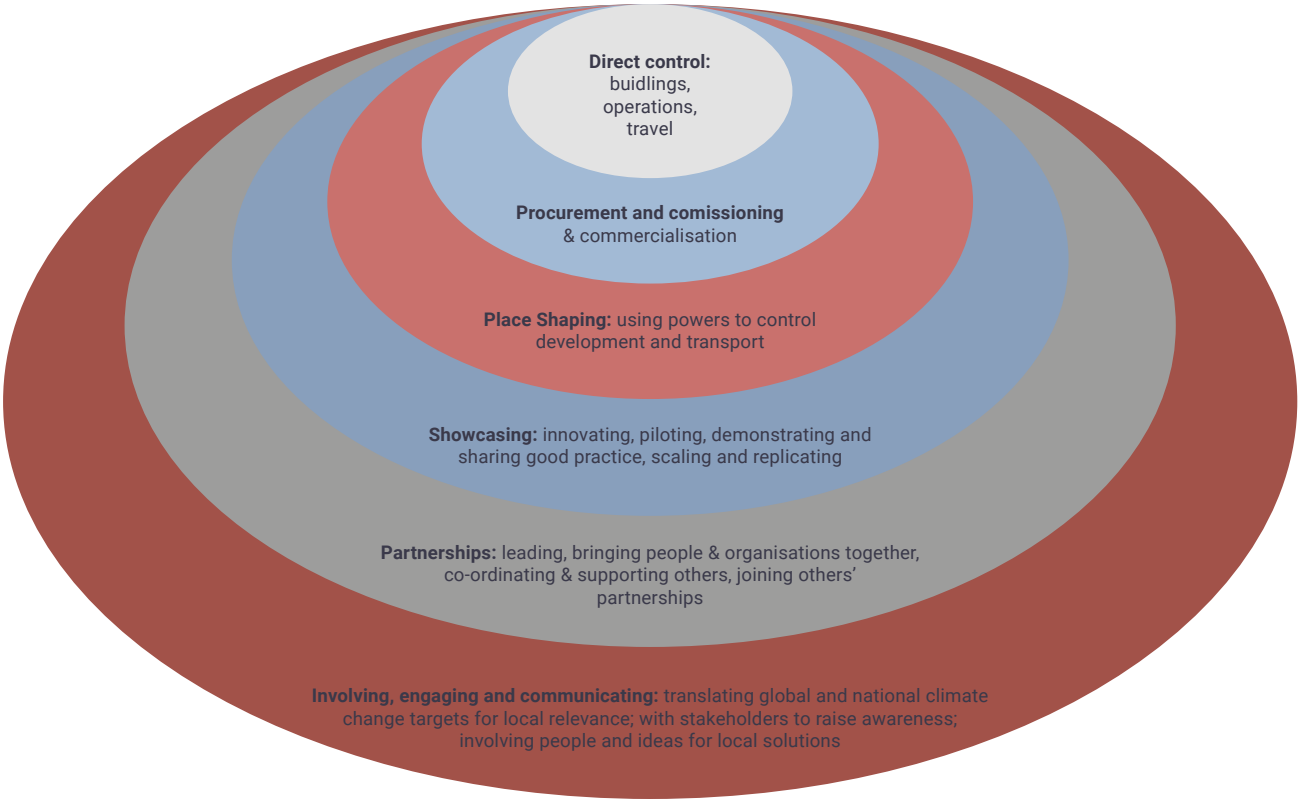
The finance sector stands ready to support Government in also exploring other potential incentives to accelerate the delivery of a net zero housing stock, and this is something that Bankers for Net Zero would be happy to scope further as part of the taskforce. This could include looking at whether existing incentives, such as the temporary zero rating of VAT for energy saving materials, could be tapered off in a gradual way if certain targets are met for scaling up the retrofit industry, bringing down the costs for households.

In addition to looking at how policy can be deployed to unlock private finance, policy also needs to be able to address vulnerable households who cannot afford to retrofit their own homes without significant government support. The Energy Company Obligation is a useful tool to support those in fuel poverty, and firm Government to this on an ongoing basis is key in order to support a just transition approach. In addition, specific thought needs to be given to the approach to buildings which are so inefficient due to age or condition that a self-financing retrofit to certain targets (e.g. EPC C) is unlikely to be viable.

Governance

Local delivery has recently been seen as increasingly important for decarbonisation measures, including retrofit. The important role played by local authorities is summarised in the 'onion chart' below, adapted from the CCC's advice to local authorities from the Sixth Carbon Budget.

Figure 8: Role of local authorities in delivering net zero



Source: CCC[59]

The dividends attached to getting local delivery of net zero right are potentially significant, as found by previous work by WPI Economics for the Local Government Association.[60] In addition, local authorities equipped with tools such as Local Area Energy plans, as developed by the Energy Systems Catapult can deliver big dividends by delivering net zero through a whole systems approach – potentially saving as much as 1% of GDP from the cost of decarbonisation.[61] This approach benefits from coordinating the co-dependent elements of a net zero transition on a local level. For example, a switch to low carbon heating and electric vehicles both result in a much greater demand for electricity from the grid locally. As a result, the rolling out of infrastructure for both needs to be coordinated with building the resilience and responsiveness of electricity grid locally.

There are some interesting local examples of whole systems approaches being deployed effectively, key examples include Bristol City LEAP [62] as well as the WMCA delivered 'Net Zero neighbourhoods'. (see below)

Case study 2: Bristol City LEAP

Bristol City Council launched the City LEAP Initiative in 2018 as a means to increase the scale and pace of the city's transition towards net zero by 2030. The main aim of City LEAP is to build an interconnected, low carbon, smart energy system, bringing the City Council's assets and influence together with infrastructure investment from an external partner organisation in a joint venture. In total, City LEAP hopes to attract around £1bn of low carbon and smart energy infrastructure investment from its external partner.

City LEAP received expressions of interest in joining the partnership from 180 organisations (local, national and international), before selecting Ameresco – an American renewable energy company – as the strategic partner in March 2022. Ameresco has initially pledged to invest £424 million over the first five years of the twenty-year partnership in low carbon energy, such as heat pumps and heat networks, as well as retrofitting the City Council's social housing by 2030. The City LEAP Energy Partnership will also sub-contract the running of Bristol's heat network to Vattenfall Heat UK, Sweden's publicly-owned energy company. Over the course of the first five years of the partnership, it is estimated around 140,000 tonnes of carbon will be removed across the city.

Source: Energy Service Bristol[63]

Local authorities can work effectively with financial institutions to deliver net zero locally through a range of routes. Local climate bonds are a key example of this, which were first introduced in 2020 through a campaign by the Green Finance Institute and Abundance Investment in West Berkshire Council and Warrington Borough Council. They were issued in the form of Community Municipal Investments (CMI) which is a loan instrument issued by a council directly to the public, allowing for raising funds for specific activities in the area, through crowdfunding[64]. The pilot projects have resulted in involvement from over 800 investors to meet their £1M target.[65] This success has led to a national campaign targeting over 400 local councils in the UK.[66]

Our stakeholder engagement suggested some significant barriers that local authorities face to scaling private finance to support local retrofit. One key barrier, particularly with regard to the raising of finance to support net zero locally, is around capacity and understanding. [67] In many cases, local authority finance teams are more likely to be set up to, for example, put together a bid for funding as part of a competitive tendering process, rather than raising finance through climate bonds. Government should support local authorities to develop this capacity, for example through the net zero hubs. This could include ensuring that all councils have retrofit officers to coordinate the delivery of energy efficiency and low carbon heating locally.

Combined Authorities can play particularly important roles in testing innovative solutions to deliver decarbonisation, which can then be scaled. It has been suggested that many Combined Authorities operate on the correct 'scale' to be able to coordinate and deliver the various aspects of the net zero transition, and make large enough investments for these to have an impact on the cost curve for the supply of green measures. The Greater Manchester Property Linked Finance trial is a key example of Combined Authorities providing space to test an innovative approach to a difficult policy problem. The West Midlands Combined Authority is another key example of this, with their innovative programme Net Zero Neighbourhoods (see below).

Case study 3: WMCA Net Zero Neighbourhoods

The West Midlands Combined Authority (WMCA) is funding a series of place-based pilot projects called the Net Zero Neighbourhoods programme, the first of which will aim to cut energy use in Brackmoor in Dudley. This is driven by the West Midlands' aim to be net zero by 2041[68]. As part of phase one of the programme, WMCA has invested £1.65m towards at least 50 homes to undergo retrofit activities such as efficient insulation, solar panels and low carbon heating systems. Furthermore, the neighbourhood approach of the programme aims to create new green spaces and transport links including electric bus services, electric vehicle street charging, car clubs and walking & cycling routes. As an eventual goal, over 300 houses will benefit from the programme, on top of the creation of new LED street lighting, playgrounds, urban gardening, green roofs and sustainable drainage systems in the neighbourhood[69].

The project undertakes a holistic approach towards transforming the urban area with greener alternatives. Although there is a heavy retrofit emphasis at its core, the Net Zero Neighbourhoods' eventual outcome entails modifying the transport habits of the residents as well as driving broader behaviour change towards achieving net zero[70]. The programme also plans to secure funding for a pilot in each of the seven WMCA areas and to create a replicable model for financing them.

Empowering consumers

There is a huge awareness gap among the public in relation to retrofitting their home. A recent survey by YouGov found that 60% of homeowners surveyed were not aware of what retrofit means. Out of the 40% that did know about it, 57% had not come across any messaging that could help them know more or take action.[71] Furthermore, the most recent BEIS public attitudes survey suggests that around three quarters of households have either never heard of an air source heat pump or know little or hardly anything about them.[72]

Government needs to take the lead in helping to overcome this awareness barrier.We strongly welcome the Government's campaign to support households to reduce energy consumption through techniques such as reducing boiler flow temperatures and draught proofing doors and windows.[73] In the longer term, this could be adapted into a campaign to raise awareness of the need for deeper retrofit, pointing to available support such as through property linked finance and a stamp duty incentive.

In delivering such a campaign, Government should work with banks, and other recognised brands, as conduits to deliver these messages to consumers. By helping to disseminate trusted messaging, banks could also help to build trust with their customers. It would also be important for Government to commission behavioural trials to test different kinds of messaging and how these could be effective in encouraging behaviour change. For example, social modelling (x of your neighbours are doing Y), or reciprocity (Government is investing £X but we need you to do your bit) framings may encourage better engagement with low carbon heating and energy efficiency.

A starting point for improving household understanding of energy efficiency will be to improve understanding of the information available in Energy Performance Certificates (EPC) which provide a series of recommendations to improve energy efficiency, as well as the A to G rating. Over the medium term, EPCs need to be updated to better reflect the actual energy efficiency of a property, as they lack accuracy in a number of respects. The updated SAP 11 process for EPCs being developed by the Building Research Establishment (BRE) will be crucial in the regard.[74]

In addition, consumers need clear independent advice on how to approach retrofitting their home, as the individual steps that need to be take can be confusing. In many cases, this can also vary based on the type of household, including tenancy and building type. This is something set out in detail in a series of case study 'personas/ developed by the Sustainable Homes and Buildings Coalition. [75]

Building renovation plans can offer consumers reassurance and clarity about the approach to home decarbonisation. These offer a step-by-step path to retrofitting a home. The development of building renovation plans by the market is well underway, but ultimately there will need to be leadership from government on a standardised methodology in order to offer clarity and comparability for consumers.[76]

We also know that local community-based approaches can provide clear routes for retrofit and provide assurance of local trusted suppliers, which can help to ease the path to home retrofit. We have heard from stakeholders that this has been delivered successfully as part of Cosy Homes Oxfordshire[77] (see next page).

Case study 4: Cosy Homes Oxfordshire

Cosy Homes Oxfordshire is a collaboration formed by the Low Carbon Hub, National Energy Foundation, and RetrofitWorks. It was set up in 2019 through a BEIS grant to fund projects working to develop a market for home retrofitting. This provided funding until March 2021.

Cosy Homes Oxfordshire takes a whole home approach to retrofitting and is designed as a 'one-stop shop' retrofit service. The service includes an initial whole home retrofit assessment leading to the development of a bespoke Whole House Plan that details all measures that could improve a home's energy efficiency and recommendations on the most cost-effective and impactful measures. Improvement could include a range of measure such as: installing energy-efficient heating systems; loft, wall and floor insulation; renewable energy installation; double/triple window glazing; and heat recovery ventilation system. Cosy Homes Oxfordshire has recently implemented a free Plan Builder that provides people with an initial idea of the scope of retrofit for their home before registering for an assessment.

To ensure that their entire service is low-carbon throughout, Cosy Homes Oxfordshire prioritises local contractors and those who supply sustainable materials. The work is largely targeted at the homeowner market, but Cosy Homes Oxfordshire has also sought to engage with private rental landlords to increase their uptake of retrofitting.

Over the two year 'pilot phase' covered by the BEIS funding, Cosy Homes Oxfordshire saw 548 homes registered on their system, completed 233 home assessments, undertook 220 Whole House Plans, with 23 retrofits in progress and 2 completed. With the completion of the Pilot Phase, Cosy Homes Oxfordshire is continuing as a commercial enterprise without external funding (and the National Energy Foundation due to their charitable status). As part of a sustainable business model, this requires 60 retrofit projects to be completed a year.

Regulation and assurance for the supply chain are required, so that households more broadly have trust in the advisers, professionals and products they will be making use of to decarbonise their homes. Organisations such as E3G and others have set out how a 'warm homes agency' could help to deliver this.[78] As well as regulation, developing the relevant skillsets from those leaving education as well as the wider economy is also vital. This means close collaboration between industry, government, and further education and private training providers. We have heard in our research that the issue around access to appropriate skills and supply chain for retrofit is more pronounced in certain regions than others.

Cross cutting issues

Just Transition

Interventions across the above three pillars will help the four nations of the UK get back on track to deliver their emissions reduction targets for the domestic building stock. However, there is a need for Government policy to support everyone to be able to reap the benefits of energy efficiency and low carbon heating, and for the vulnerable to be protected from bearing the costs of home decarbonisation. This means the Government delivering on its existing pledges in relation to social housing decarbonisation, stronger minimum standards in the private rented sector, and support for those in fuel poverty through the Energy Company Obligation. Furthermore, Government needs to address issues around potential 'property prisoners' who may be unable to get mortgages in the future due to having inefficient homes.

The finance sector is a powerful tool for decarbonisation, but a market-based approach must be combined with leadership from government to ensure an inclusive, green future.

Policy certainty

As has been highlighted, buildings as a sector has seen disappointing progress in decarbonising relative to several others. One of the key issues within domestic retrofit has been the lack of consistent policy direction over time, with many interventions, such as the Green Deal and Green Homes Grant, not staying in place for a sufficient period of time for the supply side to be able to scale and utilise the money available. This lack of certainty has been behind recent policy failures in this space, and needs to be addressed in order for key benefits to be achieved. For other sectors, such as power and transport, policy certainty has supported long term investment in technology such as renewables and Electric Vehicles, supporting a shift towards lower carbon solutions. This has been exemplified in the success of Contracts for Difference (CfD) (see case study). The delivery of policy in a way that ensures long term predictability and coherence for businesses to plan around is vital for unlocking the real potential of private finance to retrofit the building stock.

Case study 5: Contracts for Difference

Contracts for Difference (CfD) is a successful scheme in the UK to support the scaling up of renewable energy generation. Under a CfD, the Government agrees to pay the difference between an agreed price for each MWh of renewable electricity generated ("the strike price") and the market price for electricity generated. The strike prices are decided in a competitive auction where renewable generators bid for government contracts.

CfDs have supported investment in renewable energy in the UK by protecting generators from the risk of volatile wholesale prices, as well as providing assurance of a long-term income from generation. This helps to support the generators to make the upfront investment required to supply renewables. CfDs have been in place since 2014, and since then have supported a radical reduction in the cost of renewable power. Indeed, the most recent round of CfD auctions provide power at a quarter of the price of gas powered electricity, and would reduce household bills by £7 billion under current gas prices.

Source: Gov.Uk, ECIU[79]

In order to achieve the benefits of long termism, the Government should bring together key actors within the retrofit space around a series of common policies and delivery mechanisms which could be taken up by Government. The recently announced taskforce is a key means of delivering this. It is crucial that this taskforce considers closely the importance of retrofit, possibly through a specific retrofit subgroup if needed. This taskforce should include key finance sector stakeholders such as Bankers for Net Zero, Green Finance Institute, UK Finance, UK Infrastructure Bank as well as the devolved administrations, the energy sector, environmental charities, housebuilders and housing associations. We recommend that this taskforce focuses on four key areas:

- Policy
- The role of finance
- Consumer education
- A trusted supply chain

Endnotes

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