

Pwyllgor Newid Hinsawdd, yr Amgylchedd a Seilwaith /
Climate Change, Environment and Infrastructure Committee
Datgarboneiddio'r sector tai preifat / Decarbonising the private housing sector
DH2P_31
Ymateb gan Robert Chapman, Cynghorwr Eiddo Strategol ac Ymarferydd Adfywio /
Evidence from Robert Chapman, Strategic Property Adviser and Regeneration
Practitioner

Decarbonisation of housing: decarbonising the private housing sector

[Consultation display \(senedd.wales\)](#)

[Decarbonisation of housing: decarbonising the private housing sector \(senedd.wales\)](#)

Terms of Reference - the Committee will consider:

1. the current approach to decarbonising housing in the private rented and owner occupied sectors in Wales, including the effectiveness of existing programmes and support for retrofit;
2. the role of sector specific retrofit targets to help drive change;
3. actions the Welsh Government should take to progress a programme of retrofit for these sectors in the short, medium and long term;
4. the key challenges of delivering a programme of retrofit within these sectors, including financial, practical and behavioural, and action required from the Welsh Government (and its partners) to overcome them;
5. how the right balance can be struck between influencing/incentivising home owners and private sector landlords to retrofit their properties and regulating to increase standards to drive progress;
6. how effective the Welsh Government is influencing decisions on reserved matters to support decarbonisation of these sectors.

Introduction

This is an imperfect response to the consultation, because of time and other commitments etc. However, as I have discovered over the years ‘the perfect can be the enemy of the good’. Put another way, 50% of something is better than 100% of nothing. The Decarbonisation of Housing is an important matter and I was determined to submit something. It chimes with my wider interest in regeneration, sustainability and the urgent challenge of global heating.

General Response - A 20-year retrofit plan: why not?

Imagine if Wales adopted a 20-year, tenure-blind, national retrofit strategy and plan of action! Yes, a consistent long term strategy and plan of action (beyond short term political cycles) implemented by Welsh Government (in line with the [WFGA 2015](#)) which because of its import also breaks down departmental silos within and silos without. It could / should be deemed to be a significant, long term infrastructure project.

Why?

Because:

1. We have a climate emergency which is more serious than people think (Appendix 1).
2. 39% of existing homes in Wales were built before 1939 (Wales has some of the oldest housing stock in the UK);
3. existing homes contribute 20% of CO2 emissions and retrofitting would help to reduce such emissions;
4. deemed as an infrastructure project of substance, it would simultaneously need to address:
 - a. the skills shortage (viz training, schools, education, jobs, demographic age challenge, need for advisory services, accreditation, PAS2035 etc);
 - b. the requirement for further fiscal devolution viz reduced VAT on refurbishment / retrofitting, and climate resilience planning (viz PDRs for {e.g.} ASHPs / GSHPs etc);
 - c. address health issue in areas of growing inequality (Yes, there is a link between housing and health in the same way that there is a link between climate and health - they are inextricably linked).

With 80% of the homes that people will inhabit in 2050 already built, and up to 75% of today's buildings still expected to still be in use by 2050, the built environment / construction industry must prioritise retrofitting existing buildings at scale to meet energy-saving targets as outlined in the [Paris Agreement](#) (Appendix 2).

The seriousness of the situation that the planet faces is articulated by Professor Hugh Montgomery (Professor of Intensive Care Medicine, UCL and Director, UCL Institute for Human Health and Performance) in one of the Edge Debates: [Is Climate Change a health emergency](#). He shares his astounding knowledge about the climate crisis in an interview which: (i) hits us with the harsh realities of the emergency we are faced with and (ii) offers practical ways to bring about change, highlighting the responsibility we have as individuals towards achieving environmental sustainability.

Put bluntly, he states that all alarm calls to-date have been ignored. Now we are absolutely in the danger zone. GHGs in the atmosphere let short wave radiation in - light gets through, but heat doesn't get out. Effectively, what we have stored in the atmosphere right now is the equivalent of 2.8billion Hiroshimas and 30billion Hiroshimas in the oceans. Fires across the globe are adding to the extant GHGs by way of positive feedback loops. Incredibly, the Amazon is now a net emitter. This is the gravity of the situation we are in.

This requires a significant step change in private sector attitudes and behaviours (Appendix 3). For example: (i) retrofitting / utilising existing buildings because they are the most sustainable buildings (rather than demolition) whilst also adopting circular economy approaches; (ii) stepping up to the mark!

As it happens the [Building Research Establishment](#) (BRE) firmly states that the [UK Government Heat and Building Strategy](#) is not a [national retrofit strategy](#).

“The proposals in the document do not come together to create an overall policy plan of how to bring the UK’s homes to zero carbon emissions over the next 30 years, including a detailed strategy on how to train (or retrain) the hundreds of thousands of workers needed. It’s that sort of national retrofit strategy that many organisations, including the Construction Leadership Council, have argued for.”

BRE argues that the UK has some of the oldest and least energy efficient housing stock in Europe and their [Cost of Poor Housing report](#) revealed excess cold within homes costs the NHS over £850m a year. They opine that if we were to prioritise insulating housing stock, the payback to public services, society and the environment would be significant (see quote below).

Within its report, BRE also identifies that, beyond the cost to the NHS, there are 'societal costs' brought on by poor housing, such as those relating to long-term care, mental health and poorer educational achievement. BRE's findings indicate the cost to wider society of poor housing could equate to £18.5 billion per year.

Furthermore, the Chartered Institute of Environmental Health (CIEH) states:

“The UK urgently needs a long-term investment strategy into energy efficiency measures for homes. This should include grants, zero interest loans, and other incentives for households, across all tenures to reduce their energy demand and thus help the country achieve better energy security.”

“An estimated 2.5 million households with children have fallen into fuel poverty since 1 April this year due to rapidly increasing energy prices.”

Because I do not know what I do not know, is there a national (tenure blind) retrofit strategy for Wales?

My research has revealed that ‘the Decarbonisation of Homes in Wales Advisory Group’ reported to Welsh Ministers on 18th July 2019. The report was entitled: Better Homes, Better Wales, Better World. The succinct summary of 7 recommendations included these ones:

3. The Welsh Government should put in place the right quality system and delivery mechanisms across all tenures to help achieve the targets

4. The Welsh Government, working with others, should develop a holistic package of support across all tenures to motivate and facilitate action

5. The Welsh Government should collect data about the status and condition of the housing stock to inform future decisions and measure progress towards targets.

Where has Welsh Government got to in ‘actioning’ these recommendations?

Andy Sutton, Architect and one of the founders of Sero Homes / Sero Energy commented on the Better Homes report:

“Though broadly welcomed as an important first step, the report could have gone further and sought to tackle the current financial and market challenges to decarbonisation which arise from the disconnect between energy and value.”

To underscore the need for a National Retrofit Strategy for housing in Wales, the Future Generations Commissioner’s Office produced a report entitled: “Decarbonisation of housing in Wales”. Four extracts from that report are included in the References section focussed on Wales. Just a few highlights are included below.

- Economic development: potential job creation 26,500 by 2030.
- There is a skills shortfall in insulation, heating, retrofit etc.
- 1.1m homes in Wales (70%) fall under owner-occupation / private rented sector where there are weak targets, weak levels of investment etc.
- Reference is made to an Energy Services Company.
- Building on ORP (the Optimised Retrofit Programme for Social Housing), the report suggests the creation of a Retrofit Academy for Wales.
- It highlights potential sources of funding.

Facts presented in an ORP webinar on 26th January 2021 revealed that:

- Retrofitting of homes has long been recognised as a key tool in economic recovery
- Evidence shows that for every £1.4 million of investment in the delivery of domestic energy efficiency, 32.6 jobs are created / supported (Source: The value case for decarbonising homes in Wales literature review, Cardiff University, 2020)

Furthermore, previous housing retrofit projects have demonstrated multiple benefits which could enable a Green-led economic recovery creating:

- local jobs to build the foundational economy
- contribute to decarbonisation
- provide skills
- tackle fuel poverty
- provide better homes.

Right now, it is interesting to observe the significant retrofit programme being undertaken in England (see page 5).

Response to the Welsh Government consultation - Decarbonisation of housing in the private housing sector
Submission by Robert I Chapman, Dip. Est. Man. (Hons), M Sc (Regen), Surveyor, Affiliate RTPI, MIED, FRSA
Independent, Strategic Property Adviser and Regeneration Practitioner

- The **Social Housing Retrofit Accelerator** directly helps social housing providers develop successful bids for the **Social Housing Decarbonisation Fund (SHDF)** - note announcement of £800m in funding 2022 - 2025
- Developed with and for the sector, created and delivered by experts, we help social housing providers across **England** gain access to funding for major retrofit projects
- Social housing providers can access a range of **free** 1:1 and group support via Turner & Townsend who are supported by the Greater London Authority and funded by BEIS
- Local authorities and social housing landlords can apply directly or be a member of a consortium bid

Extract: [Introduction to SHRA and SHDF | SHRA Briefing](#)

Also, a post on LinkedIn on Monday morning 22nd August 2022 revealed that in Ireland up to 50,000 property owners are expected to apply for grants to retrofit their homes this year after a surge in applications over the first half of the year (see below).

The Irish Government Department for the Environment, Climate and Communications (DECC) has confirmed that last year's total of almost 20,000 applications was surpassed in the first six months of this year, with close to 26,000 applications being lodged by the end of July and more than 10,000 retrofits completed.

Specific Response

Because of time, and other factors, I am not sure that I am able to answer specifically the 6 points set out in the terms of reference. A meeting / discussion may be more beneficial. I would be happy to make myself available (with others if you wish). However, by acknowledging the content in the body of this submission and the references and appendices that follow (see below)

REFERENCES - General

REFERENCES - Wales focussed

REFERENCES - Construction / Housing / Finance / Energy / Valuation

REFERENCES – Skills / Education

APPENDIX 1: Climate Emergency – Context

APPENDIX 2: The Built Environment

APPENDIX 3: (i) Times article referencing demolition and the circular economy + (ii) Estates Gazette article in which the Chair of the Climate Change Committee – when referring to the housing industry states: “This is an industry that hasn’t stepped up to the mark”.

..... I will (by proxy) attempt to answer the points or at least make observations that can be framed or deemed to address the elements in your brief.

In the midst of my abbreviated, but intensive research, I have been **struck by a number of documents and / or research leads** which I intend to highlight over the following pages. The **first** is the Construction Leadership Council report, published in 2021, entitled: Green Our Existing Homes – National Retrofit Strategy. By default, this nods to the vision, or mission, that I set out on page 1 about a 20-year retrofit plan: why not? For convenience, see extract 1 and the narrative below it. It speaks for itself.



[National Retrofit Strategy V2 launches » Construction Leadership Council](#) – Extract 1

“This paper sets out the case for the UK Government, working in partnership with industry, finance, and other community based bodies to introduce a national retrofit strategy to make our existing homes greener and more energy and water efficient. Without a long-term plan, the UK cannot meet its targets of achieving net zero carbon emissions by 2050.

Why is retrofit needed?

Our homes use 35% of all the energy in the UK and emit 20% of the carbon dioxide emissions. If the UK Government is to deliver its targets of a 78% emissions reduction by 2035, and net zero by 2050, household emissions need to be addressed. Water use in the home accounts for almost ten-times more greenhouse gas emissions than the entire operations of the UK water industry. Heating water accounts for 17% of home energy use. The UK has some 28 million homes, the vast majority of which need improving by having retrofit work carried out. A national retrofit strategy will also improve the UK’s energy security as well as resilience of water suppliers.

Retrofit should be carried out alongside all other improvements, like loft conversions or new kitchens. When typical home improvement works are undertaken, these represent opportunities to trigger measures to help us along the path to net zero.”

The 'business case' for retrofit to decarbonise is set out in the executive summary of the report under the heading of 'What are the benefits of retrofit?'

For convenience, see extract 2 below.

Executive summary



What are the benefits of retrofit?

Improving the energy performance of our existing homes brings a wide range of benefits:

Economic – the Repair, Maintenance and Improvement (RMI) sector, which this strategy argues would be the main deliverer of retrofit improvements, represents one third of all construction output. Retrofit has the potential to create new and higher skilled jobs in every region and community and boost existing firms (especially SMEs and their supply chains). Economy-wide, retrofit also has the potential to develop and extend a labour force with a full range of high value roles which will sustain the economy at a time when it needs additional support. This speaks directly to the Government's jobs, skills, and 'levelling-up' agendas.



Social – for individual households, additional disposable income from lower energy bills, the health benefits from improved air quality, lighting, acoustics, safety, and a more comfortable home - as well as improved value of their major asset - are all important factors.¹ There were 8,500 excess deaths in England and Wales in the winter of 2019/20 due to cold homes.² Indeed spending £10 billion on poor quality housing in England alone would save the NHS around £1.4 billion per year.³ Heating water for use in the kitchen and bathroom accounts for 10% of energy bills. Retrofit measures will help the Government to meet their progress against statutory fuel poverty targets.

Environmental – reduced carbon emissions from our homes which will help create a low carbon built environment and position the UK as a global leader in the low carbon economy ahead of the United Nations Climate Change Conference (COP26) in November 2021.

The UN Secretary General has proposed six climate positive actions for Governments to take to rebuild after the COVID pandemic.⁴ This includes investing in a green transition and creating green jobs. A National Retrofit Strategy is the answer to this.

[National Retrofit Strategy V2 launches » Construction Leadership Council – Extract 2](#)

Retrofitting to decarbonise requires implementation. This is set out in the executive summary of the report under the heading of 'How will retrofit be implemented?'

For convenience, see extract 3 below.

Executive summary

How will retrofit be implemented?

Without a plan, the existing workforce cannot deliver the ambitious programme which could transform both our building stock and the construction industry. A systematic scaling up approach is needed to meet the volume of work needed. This has been modelled as a 's-curve' over the programme period from 2021 until 2040 and includes three distinct phases:

- **Phase 1** - underpin capability, including an endorsement by the Government of this strategy.
- **Phase 2** - a slower start focussing on the education of householders and the wider industry through a clear communications campaign as well as an intensive training programme for new entrants to the industry. Piloting and field trials would also be taking place.
- **Phase 3** - a 'quick' middle period based on a mature supply chain eco-system and strong customer protection.
- **Phase 4** - a ramp down of pace towards the end focussing on hard to treat properties, and also a phased redeployment of resources to alternate sectors.



Nottingham City Homes:
Energiesprong Retrofit, Melius Homes

“ The industry needs around **500,000** new professionals and trades to tackle this challenge ”

In partnership with industry, the Government is asked to invest and create a long term policy framework which will meet its statutory carbon targets and trigger wider confidence to unlock private investment from property owners and financial institutions.

The industry needs around 500,000 new professionals and trades to tackle this challenge. We also need to upskill our existing workforce. The Government has supported the development of new training standards for Retrofit Coordinator and Retrofit Installer, which can form the basis of the programme in terms of training and quality assurance. Clarity on standards, process requirements and audit will provide a firm foundation for both training and market transformation.

The strategy has been developed with the private market in mind. However, its principles can and must be extended to the social sector as well. We are aware of significant work being undertaken by local authorities and the housing association sector to improve the energy efficiency of their housing stock. We are also aware of the progress being made in this historic building sector, and that insight can be brought from their findings.

We hope that 2021, the year when the UK hosts the United Nations Climate Change Conference, will be the ideal moment for all these bodies to unite behind the principle of a national retrofit strategy, and take the bold action needed to reduce carbon emissions before it is too late.

[National Retrofit Strategy V2 launches » Construction Leadership Council – Extract 3](#)

The successful delivery of a ‘Retrofitting to decarbonise’ strategy (Decarbonising Housing) requires a **delivery system**. This is set out in the report graphic, which for convenience is set out below as extract 4 below.

The delivery system: Successful delivery of the strategy requires a suite of interdependent modules and if any are left out, the whole ceases to function. Each are dealt with in turn below.



[National Retrofit Strategy V2 launches » Construction Leadership Council – Extract 4](#)

The **second** is the mySociety scoping research by Alex Parsons. This research addresses a number of elements in your brief. Note the succinct summary points in the extract below. They are all relevant.



Summary

- The current incentives for landlords to improve energy efficiency in their property are inadequate.
- Higher minimum standards are needed; these are coming into effect over the next few years, with the goal of improving the minimum to an EPC 'C' rating by 2030.
- A lack of viable enforcement is an obstacle to achieving this.
- While resourcing is an immediate problem, the big issue is that local authorities have no good way of contacting landlords for enforcement purposes.
- This requires some form of data collection or landlord registry (which can also fix some resource problems).
- The faster pace of change in Scotland means it is a good place to explore potential options in a way that is directly helpful to renters in Scotland, and can lay the groundwork for a subsequent more effective change in England and Wales.

MySociety Scoping Research

Following on from the mySociety research (May 2022), I read a recent article which referred to a Property Survey report by Handelsbanken. As I happen to 'bank' with this bank, I was able to obtain the report [Handelsbanken SME Landlord Survey | Handelsbanken](#) (the **third** document or research lead).

Section 3 of the report is entitled 'The rise in importance of sustainability'. The following two extracts below speak for themselves and address a number of your 'terms of reference'.

	All respondents
Installing insulation	43%
Installing a new, energy-efficient boiler	36%
Acquiring newer properties instead of older, less energy-efficient properties	35%
Installing double glazing	30%
Installing an efficient secondary heating source	28%
Installing solar panels	19%
Nothing as I am planning to sell the properties with a rating of less than E as I cannot afford to make them more sustainable	17%
Nothing as all of my properties have a rating of E or above	9%
I was unaware of this legislation	39%

What are you doing to ensure your portfolio meets the change to EPC legislation?

HANDELSBANKEN PLC PROPERTY SURVEY REPORT, p7

What are the main reasons preventing you from making your portfolio more environmentally sustainable?

	All respondents
The regulations make it too difficult	42%
I don't have enough knowledge about how to make my portfolio more sustainable	38%
I don't believe I could access the finance I'd need	14%
I don't have the Capex to invest in making it more sustainable	12%
Some / all of my property is listed so making upgrades is too difficult	10%
It's not a priority for me	1%
I have a clear plan in place	1%

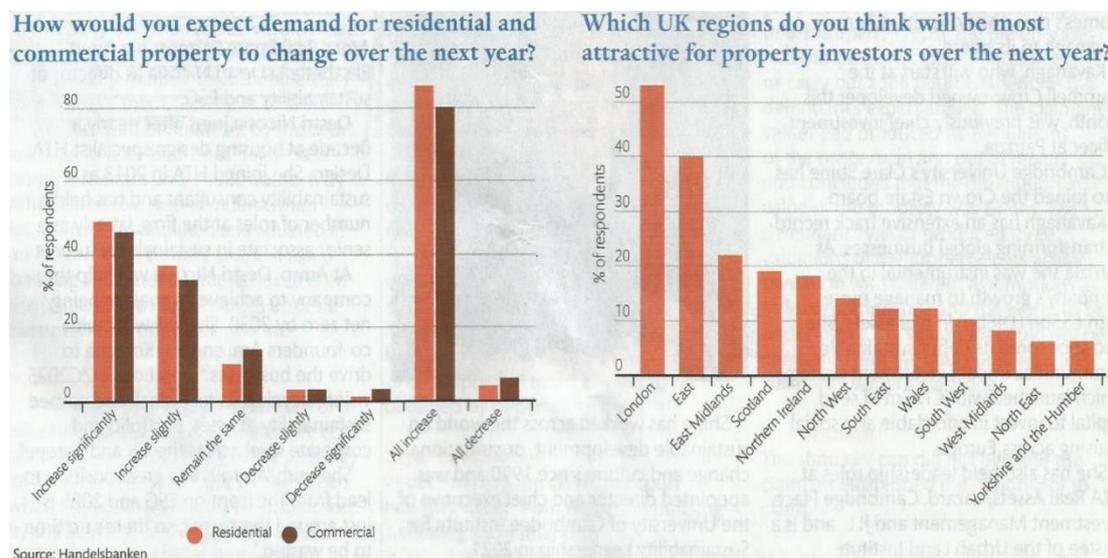
HANDELSBANKEN PLC PROPERTY SURVEY REPORT, p8

From April 2023, it will be a legal requirement in England and Wales (rules are different in Scotland), for all commercial rented properties to have an EPC (Energy Performance Certificate) rating of at least E. With less than a year for commercial landlords to get their properties up to scratch, a survey by [Handelsbanken](#) reveals that as many as two fifths (39%) of commercial landlords are not aware of this legislation coming into place. This statistic beggars belief!!

Apparently, the most common barrier preventing commercial Landlords from making the required EPC upgrades is the regulation making it too difficult to do so (42%), while 14% claimed they could not access the right finance. Another 12% said they lacked the capex to invest in making their portfolios more sustainable. Strange they have the CAPEX to acquire a property (benefitting from inflationary growth) yet cannot find the money to

improve the climate resilience of their property(ies)! I am sure that a parallel could be drawn with residential properties, the subject of your consultation.

By the way, information on regional property investment (including housing) is shown in the image below.



[Handelsbanken SME Landlord Survey | Handelsbanken](#)

The **fourth** document or research lead was the strategy produced by E3G: [The Home Energy Security Strategy](#). See extract below and the narrative on the following page.

E3G

BRIEFING PAPER JUNE 2022

**THE HOME ENERGY SECURITY STRATEGY:
 A PERMANENT SOLUTION FOR LOWER BILLS**

JULIET PHILLIPS, COLM BRITCHFIELD, PEDRO GUERTLER

With thanks to expert contributors and reviewers: Matt Copeland, Nigel Donohue, Sharne Lane, Keith Watson, Jess Ralston, Abigail Ward, Stew Horne, Rebecca Pickavance, Daniel Newport

Executive Summary

Across the UK, millions of families are struggling under the weight of spiralling costs of living. Soaring energy prices are a key driver. Despite the welcome one-off support recently announced by the Chancellor, the situation is unlikely to improve in the short or medium-term. Ofgem have predicted that the energy price cap will hit £2,800 in October. The underlying volatility in the price of oil and gas causing the price spike is not predicted to subside for the foreseeable future. Analysts predict that wholesale prices will remain above 2021 levels until at least 2030.

The government has provided £37bn this year just to keep people afloat.¹ Investing now in long-term, enduring solutions can prevent similar sums from being required up to 2030 and potentially beyond. The government could act now to reliably lower bills by launching a national mission to upgrade the UK's cold and leaky homes.

Extract: Home Energy Security Strategy

“When the energy price cap rises again in October, the average household in a home with an Energy Performance Rating (EPC) of D or below – at least 15.3 million UK households – will pay an ‘inefficiency penalty’ of £916 more per year for adequate heating than the average household living in a home rated EPC C or better. If every home below EPC C was improved, the aggregate bill saving would be £10.6bn each year at today’s prices.

The UK spends more money on energy wasted through walls and roofs of our houses than any other country in Western Europe – leaving families poorer, unhealthier and colder. Given the new energy context, this cannot be allowed to continue.”

Notably, The Home Energy Security Strategy calls on the government to:

- 1. “Step up energy efficiency support for the UK’s most vulnerable households this year, delivering the outstanding £1.4bn from the 2019 Conservative manifesto for efficiency, and by swiftly putting the next phase of the ECO programme into legislation to upgrade 450,000 fuel poor homes over the next 3 years.*
- 2. Introduce new support this year to help hard-pressed families upgrade their homes by expanding ECO to include a new “ECO Plus” scheme giving families on middle and lower incomes access to subsidised energy efficiency measures delivered by their energy companies. With £1bn per year, ECO Plus could support up to 2.1m households over three years.*
- 3. Build the supply chain with skills investment and long-term, regulatory market signals, starting this year by launching an Olympic-style skills and training programme for the retrofit supply chain; and providing long-term certainty to the market through strengthened private rented sector minimum energy efficiency standards, and a roadmap to minimum performance standards for all housing tenures including owner occupiers.*
- 4. Improve the consumer experience through public engagement and a trusted advice service, starting this year by making independent energy advice readily available to people across the country so they can understand what help is available to them, what steps they can take to improve their homes, and guide them through the process.*
- 5. Support attractive green finance options for people who want to invest further, putting new reporting requirements on mortgage lenders and setting up concessional green home finance through the UK Infrastructure Bank in the medium-term.*
- 6. Restructure incentives to encourage home retrofit by removing legacy policy costs from electricity bills – saving households around £100 per year and removing a barrier to clean, electric heating; and introducing tax incentives like an energy saving stamp duty land tax adjustment.”*

All of these points, I suggest, are relevant to your brief.

The **fifth** document, or research lead that struck me was a further piece of research by mySociety '[Exploring conditional commitment services around home energy](#)'. A summary is available [here](#) in the embedded link. In the narrative extract that follows, note the reference to the role of local authorities. Again, I believe this is relevant in the context of the brief.

“The UK's homes use approximately 30% of the country's energy and are responsible for 18% of its carbon emissions. Decarbonising the residential property sector is high on the priority list for both national and local governments, but change is hampered by the complexity and high costs of retrofit options, a lack of suitably skilled workers, and poor incentives for homeowners.

Ultimately, we finished the week with unanswered questions around the level of financial support available for householders, the role that local authorities could play in a service like this, and the suitability of thermal imaging and retrofit assessments as catalysts for change. This is clearly an urgent and highly impactful problem space – but more experimentation is required to identify the right mix of data, guidance, and community movement building, to power widespread action.”

The **sixth** research point that struck me was a piece of research by ClimateXChange entitled: '[Net zero behaviours in the recovery from COVID-19](#)'. The findings underscore the importance of creating an enabling environment – another key point I suggest.

The **seventh** research point of import that struck me was a brief reading of an article on the Energy Security Bill. My understanding is that there is to be a Heat Network Zones Authority at national level, and “zone coordinators” by one or more local authority for a wider area. The Heat Network Zones Authority and the zone coordinators will identify areas for the construction and operation of heat networks. My reflective question here is: **what does this mean for Wales?**

The Bill introduces a low-carbon heat scheme intended to accelerate the government’s ambition to achieve 600,000 heat pump installations per year by 2028. **What does this mean for Wales?**

Further, with the increasing electrification of our transport and heating, energy systems need the ability to manage demand and supply. This is referred to as Electricity Load Management. **Does this require the need for Local Area Energy Plans in the four economic regions of Wales?** See extract below from a webinar I attended. Also, what does this mean for infrastructure?

In order to unlock this investment we require a high bar of evidence. We are creating a framework to assist regional authorities in developing high quality Local Area Energy Plans to provide this evidence.

Evidence Requirements

Ambition	Scope	Quality	Stakeholder	Governance	Funding
• Does the plan decarbonise ahead of the 2050 national target?	• Does the plan consider multiple sectors and technologies?	• Is the plan informed by spatial mapping, CBA, and scenario analysis?	• Was the plan developed with local stakeholders?	• Is there a delivery plan with project owners?	• Has funding been secured?

In our engagement with local authorities, we have found that spatial mapping and funding are the two largest challenges.



Local Area Energy Plans!?

The Bill envisages the introduction of regulations for energy smart alliances, such as electric vehicle charge points and heat pumps. Smart devices will be required to meet minimum technical requirements for cyber security, interoperability and data protection, to ensure load management systems are safe and secure for both consumers and the grid.

The **eighth** piece of research – this time qualitative – that struck me was an opinion expressed by the Chief Executive of [Landsec](#), Mark Allen in a recent Estates Gazette article.

“The future of our industry and the world in which we operate is in jeopardy without turning targets into tangible results”.

He opines that *“decarbonisation is a necessity, not a choice. Achieving our targets will require us to rethink how we do things - during planning, development, through the operational lifecycle and at the end of life of our buildings.”*

He suggests four simple things that Government could do to back the ‘built environment’ in its efforts to drive down carbon emissions:

1. Bring forward the **Future Homes Standard and Future Buildings Standard**, ensuring the standards included are benchmarked against the latest industry practices and achievements. Legislation is one lever to pull on the journey to net zero - but we also need accountability and transparency.
2. Move away from our reliance on the EPC ratings system, which provides a theoretical measure of energy performance. Instead, an **in-use performance-based rating system** should be introduced to provide real and relevant benchmarks.
3. **Embodied carbon** regulated by requiring whole life carbon assessments through an amendment to building regulations to drive accountability and progress. Earlier this year, the Environmental Audit Committee urged government to implement an assessment that would calculate emissions from construction, maintenance and demolition, as well as from day-to-day energy usage once built - a whole-life carbon approach is fundamental to reducing lifetime emissions, while also enabling more accurate target setting for carbon reductions.

4. Our industry needs a **fit-for-purpose regulatory framework to enable the widespread use of sustainable building materials** such as timber.

I agreed with all four of his suggestions. I think they are relevant to your consultation, albeit [Landsec](#) is a corporate operator, not an SME operator.

The **ninth** (and final) research piece that made me think pertains to education (skills etc). In the Wales focussed references section you will find extracts pertaining to the Future Generations Commissioner's Report – [Homes Fit for the Future: The Retrofit Challenge](#). There are notable comments about the lack of skills, training and by proxy education. This needs to be addressed as quickly as possible if a National Retrofit Project is to be implemented. Therefore, I was interested to stumble across the [Edge Debate Think Tank](#). Apart from convening '[The Big Issues Webinar Series](#)' earlier this year (all excellent by the way), Edge Debate also arranged an [Edge Education Roundtable](#) held on 30th June 2022.

“Those entering the built environment professions today will be expected to rapidly develop the skills and ability to ensure that the projects they deliver have net zero carbon emissions and increased levels of biodiversity. In all likelihood achieving these two goals will be the primary focus and undertaking of their future careers. To accomplish this, new entrants to built environment courses need to arrive with the right knowledge and mind-sets, and schools need to ensure that they have prepared potential entrants by the end of sixth form with the attributes they require to succeed in their subsequent technical and professional training. To reach this point environmental education needs to start in the earliest years, building up awareness of the twin challenges of climate and ecological breakdown and a positive approach to and belief in what can be done to tackle them. Only in the later stages will courses need to deliver more specialised content aimed at students applying to built environment courses.”

As it happens, the meeting per se was chaired by Jane Davidson, Pro Vice-Chancellor Emeritus, University of Wales Trinity Saint David (and ex Assembly Member). Notes were prepared following this [Edge](#) round table meeting. I will share these with you, alongside this document because they deserve to be read as part of this consultation.

In the following pages, I offer my own reflections and experiences which perhaps underscore the enormity of the challenge. BUT, we must act.

In terms of driving the market, the private sector / private housing market (the focus of this consultation) maybe a tad nervous at the moment because of:

- the early and unexpected demise of last year's Green Homes Grant, which focused on mainstream households, notwithstanding the current availability of a [grant for ASHPs](#) ;
- the lack of fiscal incentives such as a discount on council tax or VAT reductions for renovation materials and installation;
- the prospect of regulatory measures viz MEES, with the associated enforcement;
- the limited green mortgage market to help make financing more readily available; and

- their lack of knowledge about low carbon options and their 'unsureness' of the new technologies.

Of course, all of this needs to be considered in the midst of a [major cost of living crisis](#).

In note form, based on my research, here is a random list which I have entitled: Perception of Challenges / Opportunities.

- National Planning Policy - clear articulation required - LAs need to be clearer about what is required / not required. Linking up National and Local is very important.
- 5 things - what stops us: Time - funding - passion - advice - permission
- Rural - upgrading rural supplies
- VAT rates for retrofits same as new build rates!
- Planning rules through prism of climate resilience - ameliorate to work
- Permitted development to allow planning permission for ASHPs and GSHPs etc
- Existing homes contribute 20% of CO2 emissions - absence of a long term strategy from government e.g. Green Homes Grant and heating and building strategy
- Shortage of materials - skills shortage - up skill to meet standards - vision - climate change
- Retrofit market - huge potential - standards - no licensing / accreditation!? e.g. FMB
- Grosvenor looking at skills gap
- Lack of support for heat energy - mentioned in recent CCC report
- Climate change - at uk level - has many departments but in Wales make the most of the Climate Change Minister
- Legislative opportunities - check out what's happening in Wales
- Engaging the wider community
- Information - difficult - PAS2035 - builders accredited to
- 39% of homes built before 1939
- Huge number - an infrastructure project in a holistic sense!
- Need to act NOW within next 7 years - sense of urgency
- One change - policy etc - that would make: 20% VAT on repairs and maintenance
- Clear steer for end date for non-domestic buildings and systematic roll out of infrastructure for rural areas
- 20 year retrofit plan across 4 economic regions of Wales with Consistency in retrofit strategy
- Break-down silos
- In England, 3.8bn Social Housing Fund. Need 400,000 new retrofit skills in the marketplace over the next few years.
- RICS - correlation between EPC and valuation. Also, disproportionate amounts viz development appraisal - profit, not building fabric.
- Economic development

- Performance gap - !!! More consumer protection buying a prawn sandwich than you have buying a house costing 1000s of £s. Compensation - National House Builders.
- UK homes - 18% of carbon emissions.
- Range of retrofit options based on a holistic assessment. E.g. apart from ASHPs, Passivhaus, Battery storage, Infrared
- Sustainable Development - Supporting students and teachers – curriculum change / regulation / climate change / accredit / sustainability enhancement - Facilitate inner-Greta: work experience / school competitions.
- The Landlord / Tenant occupational contract: One of the (so-called) stumbling blocks for Landlords is that energy efficiency works are likely to be classed as “improvements”, and many service charge provisions do not allow Landlords to carry out improvements and recover the costs of the same from tenants.

Finally, I am now going to share some of my own experiences concerning the subject of retrofit.

Firstly, my office(s) in Llandaff is the equivalent of a house. After a lengthy process, an Air Source Heat Pump was installed, and commissioned on 30th September 2021. It was not straight forward [The Installation of an Air Source Heat Pump into my offices – a short story – RC2 \(rchapmanandco.com\)](https://www.rc2.co.uk/rc2-blog/the-installation-of-an-air-source-heat-pump-into-my-offices-a-short-story-rc2-rchapmanandco.com).

Regarding my (our) own domestic house, I have been exploring further investment to improve its climate resilience. Again this has not been straight forward and represents the challenges that ordinary folk face when attempting to grapple with a house retrofit. Some of the frustrations or ‘learning’ was highlighted earlier in the narrative referring to the perception of challenges and opportunities. Here are just a few anecdotes.

1. EPCs

This is what I learnt from recent interactions concerning the value of EPCs.

- the recommendations given by EPC assessments are not always worth the paper they are written on. They can be based on flawed assumptions (carbon intensities of electricity), outdated installation costs and don’t consider many building-specific factors that fall outside of the relatively narrow EPC process;
- they are not always aligned to real-world savings in carbon and running costs;
- currently domestic EPCs are still based on outdated (SAP 2012) software. New-build homes will move to the updated software (SAP 10.2) within the next month or so. The timeframe for updating the software used for existing homes (RdSAP) is less clear but may happen towards the end of 2022 / early 2023;
- electricity carbon factors and costs used by the old version are no longer representative of real-world levels (they’ve dropped from over 500 gCO₂/kWh to less than 140 gCO₂/kWh in the new version – a massive difference). This is particularly important when assessing the impact of switching heating and hot water systems to electric;

- when using the old software (SAP 2012), while the headline epc rating is valid for gas heated homes, any recommendations it makes will be on unrepresentative calculations of carbon emission and energy costs.

Nb: Both the old (SAP 2012) and new (SAP 10.2) software use energy cost assumptions* that are completed unrepresentative of the prices we are currently experiencing (and expect to continue for at least a few years) in this energy crisis. These rates would need to be inflated by around 200 – 300% to represent the real-life situation in 2021 – 2023 (and beyond?). Since the headline EPC rating is determined solely on anticipated energy costs (not carbon!), one can hopefully see why any decisions based solely on an EPC calculation or rating could lead one down the wrong path.

*SAP 10.2 uses:

Gas – Standing Charge of 25.2p/day and Unit Rate of 3.64p/kWh

Elec – Standing Charge of 22.2p/day and Unit Rate of 16.49p/kWh

2. New Housing and Technology

Let me say straight away that I am a great admirer of James Williams (MD) and his team at Sero Homes / Sero Energy. The video that was produced on [Affordable Eco Housing](#) pertaining to the 220 houses at Parc Eirin makes for engaging watching and listening.

But the challenge is that **most of the housing stock that people own / occupy is old**. Indeed, my (our) own homes dates from about 1880 (so the Deeds tell me). At an Insider Wales debate on such matters several weeks ago, I posed this question (see below).

Q: How is the ordinary (non
built-environment
householder) person meant
to grapple with retrofitting?
How should that person
procure? Who to go to?

Yes, it is a fair question to which there was not a definitive answer(s).

Apropos the video referred to above, which one can find on YouTube, one observer offered these comments (see below and on the following page):

What can we do with old housing stock to improve heating efficiency? Can anyone link to some relevant videos please?

I have some questions who's answers I think would accelerate improvements all over the UK:

? What should we get when our gas boiler needs replacing?

? Are there air source heat pumps that can be used stand-alone or do we need to get a boiler with one integrated?

? If I can't install solar PV can I still benefit from a battery with the right energy provider?

? If I don't have enough roof space are there more powerful PV panels that will take up less space coming to market?

? Can I dig a ground source borehole in my back garden?

? What is available to the consumer without moving house?

While new builds must be done this way, we aren't going to save carbon by demolishing the old housing stock to rebuild all of that.

All fair questions but currently (in my humble opinion) there is a vacuum in the private sector world (as I perceive it) which needs to be addressed vis-à-vis awareness, skills, training, scaling-up. Other necessities include consistency, credibility, reliability, accreditation etc. And, yes, what about some videos on retrofitting different types of older housing, accepting of course that the process is not formulaic.

For example, in a recent conversation with an Architect, I asked if he / she could recommend a Retrofit Co-ordinator. This was his / her reply.

Having done the training, I can't recall what it qualifies me for...useless.
Have you done John Edwards course?

Everyone that knew / met doing it were training in house for RSLs or retrofit companies.

I then asked:

But what about the private sector? viz standards and accreditation.

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This is his / her reply.

I don't, no.

I posted something about PAS2035 on LinkedIn. The Director of a Surveying Company replied:

"Who, on earth thought it would be a good idea to have 6 separate roles in helping consumers insulate their house? This doesn't make any sense, at all!"

To top it off, I received a couple of helpful replies from Professor John Edwards (an expert in the field of Retrofitting) which you can see below.



prof. john edwards • 1st

23m ***

Director Edwards Hart Consultants

Just to make you aware PAS2035 no longer has the Retrofit Advisor role - this was removed officially on the 1st April 2022. Other roles have responsibility for advice and in particular the Retrofit Coordinator

Like | Reply · 2 Replies

Load previous replies



prof. john edwards • 1st

9m ***

Director Edwards Hart Consultants

Robert Chapman the Retrofit assessment will be done by a Retrofit Assessor. This is an accredited role so accreditation bodies such as Stroma and Elmhurst can provide details of such persons. Many Retrofit Assessors work for installers so you could contact a Trustmark registered installation company

So, what is my point. None of this is straight forward. This needs to be overcome – by way of a proactive plan of action – so that everyone embraces the need to retrofit because it is the right thing to do, it provides climate resilience for their asset and, to boot, it reduces carbon emissions.

Robert I Chapman

Dip. Est. Man. (Hons), M Sc (Regen), Surveyor, Affiliate RTPI, MIED, FRSA

REFERENCES – General

[IPCC issues ‘bleakest warning yet’ on impacts of climate breakdown | Climate crisis | The Guardian](#)

[Climate Change Committee \(theccc.org.uk\)](#)

[Risks to health, wellbeing and productivity from overheating in buildings - Climate Change Committee \(theccc.org.uk\)](#)

[Analysis: Cutting the ‘green crap’ has added £2.5bn to UK energy bills - Carbon Brief](#)

[Cold truths about our cold homes | New Economics Foundation](#)

[Libraries and museums to be ‘warm havens’ for people struggling with energy bills | UK cost of living crisis | The Guardian](#)

[Cost of living crisis | The Institute for Government](#)

[Low-carbon homes: best strategies and pitfalls – UKRI](#)

[UK-housing-Fit-for-the-future-CCC-2019.pdf \(theccc.org.uk\)](#) - Committee on Climate Change
February 2019

“In its report UK Housing: Fit for the Future, the committee recommends that the government should use initiatives under the Construction Sector Deal to tackle the low-carbon skills gap, with new support provided to train designers, builders and installers to ensure that homes have low-carbon heating, are energy and water efficient and are flood resilient.

The report highlights that there are plans for 1.5 million new UK homes by 2022: it insists that these homes must be low-carbon and energy efficient. The costs of making homes low-carbon, energy and water efficient, and climate resilient “are not prohibitive, and getting design right from the outset is vastly cheaper than forcing retrofit later”.

The committee says that from 2025 at the latest, no new homes should be connected to the gas grid. Instead, they should be heated through low-carbon sources “have ultra-high levels of energy efficiency alongside appropriate ventilation and, where possible, be timber-framed”.

The committee found that reducing emissions from UK homes has stalled, while energy use in homes, which accounts for 14 per cent of UK emissions, increased between 2016 and 2017. It warned that the UK’s legally binding climate-change targets won’t be met without the near-complete elimination of greenhouse gas emissions from UK buildings. Efforts to adapt are “lagging” behind what is needed to keep the population safe and comfortable.

Baroness Brown, chair of the CCC’s adaptation committee, noted that the report confirms “what we have long-suspected – UK homes are largely unprepared for climate change”.

“There must be compliance with stated building designs and standards. We need housing with low-carbon sources of heating. And we must finally grasp the challenge of improving our poor levels of home energy efficiency. As the climate continues to change, our homes are becoming increasingly uncomfortable and unsafe. This will continue unless we take steps now to adapt them for higher temperatures, flooding and water scarcity. Our report shows that this work has barely begun.

“Major improvements in how we design, build and use our homes are needed to meet these challenges. We have highlighted the need for appropriate sources of finance and funding – and a national training programme to ensure we have the building and construction skills required in the UK. Climate change will not wait while we consider our options – the nationwide shift we need to make UK homes climate-ready must start today.”

[The terrifying truth: Britain’s a hothouse, but one day 40C will seem cool | Climate crisis | The Guardian \(ampproject.org\)](#)

[Floods, storms and heatwaves are a direct product of the climate crisis – that’s a fact, so where is the action? | Climate crisis | The Guardian \(ampproject.org\)](#)

[The case for an energy retrofit programme for UK homes | Energy Knowledge \(energyinst.org\)](#)

[Net zero behaviours in the recovery from COVID-19 \(climatexchange.org.uk\)](#) – creating an enabling environment

[In depth: which places are disadvantaged? | Climate Just](#) – there is an uneven distribution of climate disadvantaged neighbourhoods across the UK.

[Unlock Net Zero - Resources](#)

[Overheating in Retrofit and Existing Homes – Tool and Guidance – GHA Knowledge Base \(goodhomes.org.uk\)](#)

[202112-GHA-Retrofit-Existing-GUIDANCE-Rev1-BETA-1.pdf \(goodhomes.org.uk\)](#)

[Adaptation Inventory | OpenCLIM \(nismod.ac.uk\)](#) - Open Climate Impact Framework, Tyndall Centre

[The fact we’re still installing gas boilers is a disgrace - Energy Carbon](#)

[Surveyors call for urgent regulation of spray foam industry \(thenegotiator.co.uk\)](#)

[Rebuilding Britain Index \(RBI\) | Legal & General \(legalandgeneral.com\)](#)

[rebuilding-britain-index-wave-6-digital.pdf \(legalandgeneral.com\)](#)

[PAS 2035: The Movie - YouTube](#)

[Retrofit Masterclass - Centre for Alternative Technology \(linkedin.com\)](#)

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[Passivhaus: how to insulate your home against soaring heating bills | Money | The Guardian](#)

[Each Home Counts December 2016 .pdf](#)

[IHBC Toolbox Retrofit Guidance - YouTube](#)

[500,000 homes sitting empty in UK while 100,000 families are homeless | Metro News](#)

[The case for an energy retrofit programme for UK homes | Energy Knowledge \(energyinst.org\)](#)

Currently, excess cold within homes – which is to a large extent caused by inadequate or a lack of insulation – currently costs the NHS over £850mn a year in treatment bills, according to a recent report by BRE

[Retrofit numbers hit the roof as grant claims rise | Ireland | The Sunday Times \(thetimes.co.uk\)](#)

[Residential retrofit: 20 case studies — PDP London](#)

[Resident Engagement toolkit \(socialhousingretrofit.org.uk\)](#)

[The Social Purpose of Associations - Boardroom](#)

[Prototyping week 5: Improving energy efficiency in the private rented sector / mySociety](#)

[Can we improve energy efficiency in the private rented sector? \(mysociety.org\)](#)

[CCC Progress Report: UK making 'scant progress' towards net-zero, with home energy efficiency a major pitfall - edie](#)

[Can a government campaign persuade Britain to use less energy? | Energy efficiency | The Guardian](#)

The UK has the worst insulated housing stock in Europe and only 58% of Britain's homes meet the insulation standards of the 1970s.

[Retrofitting for the future: Net zero for existing building stock - YouTube](#) - 29 minutes-in

[Government accused of missing opportunity to prioritise energy efficiency measures - NewStartMag](#)

“The UK urgently needs a long-term investment strategy into energy efficiency measures for homes. This should include grants, zero interest loans, and other incentives for households, across all tenures to reduce their energy demand and thus help the country achieve better energy security.”

An estimated 2.5 million households with children have fallen into fuel poverty since 1 April this year due to rapidly increasing energy prices.”

[Inside Housing - Comment - The Grenfell Tower Inquiry has painted a vivid picture of the world we must leave behind](#)

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Grenfell’s “investigations have, piece by piece, delivered a stunning condemnation of the state of our public and private sectors, from ground-level social housing management to the corridors of Whitehall, taking in the fire service and the construction industry on its way.”

“In the private sector there was a callous indifference to anything – morality, honesty, life safety – that was not related to the bottom line of the business.”

“In the public sector there was an aversion to anything that disrupted the status quo, a weary cynicism and an insular desire to protect the reputation of organisations by refusing to admit or actively concealing flaws.”

[can_brochure_english.pdf](#) Climate Active Neighbourhoods

[Exploring conditional commitment services around home energy \(mysociety.org\)](#)

[CPD 06 2022: Achieving Net Zero Carbon in the Built Environment – Building | Building Design | Housing Today CPDs](#)

[How much could insulating Britain save the average home? | UK cost of living crisis | The Guardian](#)

[The-home-energy-security-strategy-a-permanent-solution-for-lower-bills_E3G-report-1.pdf \(netdna-ssl.com\)](#)

[Exploring conditional commitment services around home energy \(2022\) - mySociety Research](#)

<https://research.mysociety.org/html/prototyping-home-energy/#summary>

[National Retrofit Strategy - Centre for Alternative Technology \(cat.org.uk\)](#)

[National Retrofit Strategy V2 launches » Construction Leadership Council](#)

[The Retrofit Academy CIC - YouTube](#)

[What is PAS 2035? - Retrofit Academy](#)

[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)

[Ten toolkits for retrofit - Toolkits | Social Housing Retrofit Accelerator](#) in England

[1653316104 Retrofit Project Overview toolkit.pdf](#) in England

1. **Retrofit Project Overview** - an overview of the main activities across a typical retrofit project lifecycle
2. **Business Case** - how to develop a solid business case that will explain your retrofit project's goals, importance, and how you plan to deliver it

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3. **Consortium Forming** - the options and considerations for forming a consortium, and whether this route is right for your retrofit project
4. **Data for Retrofit Projects** - best practice for managing and improving your data quality to aid with retrofit programme decision making
5. **Introduction to PAS 2035** - what PAS 2035 covers, what the key processes are, and what benefits you will gain by following it
6. **Monitoring and Evaluation** - the purpose of monitoring and evaluation, and guidance on creating a plan for your retrofit project
7. **Procurement** - what to consider for an effective procurement strategy for your retrofit project
8. **Resident Engagement** - the importance of resident engagement, and how to deliver an effective strategy for the best retrofit outcomes
9. **Senior Management Buy-in** - how to create and deliver a compelling story to get the buy-in of senior managers and key stakeholders
10. **Team Forming and Skills** - the main skills and competencies needed to develop and deliver large-scale retrofit projects



THE SOCIAL HOUSING DECARBONISATION FUND

Wave 2.1 key criteria:

- £800m has been committed for the SHDF as part of the 2021 Spending Review settlement. The Wave 2.1 competition will look to allocate as much of this funding as possible to support the installation of energy performance measures in social homes in England.
- Local Authorities, Combined Authorities and Registered Providers of social housing can apply directly for funding under Wave 2.1.
- Consortium applications must be led by a Local Authority, Combined Authority or Registered Provider of social housing.

The infographic features a dark background with white text and icons. At the bottom, there is a row of green line-art icons representing various aspects of social housing and decarbonisation: a house, a wind turbine, a factory, a crane, a building under construction, and a modern apartment block.

[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)

THE SOCIAL HOUSING DECARBONISATION FUND

Wave 2.1 key criteria:

- Non-registered providers who are ALMOs or registered with the charity commission can apply as part of a consortium.
- Bids must include a minimum of 100 social homes below EPC C – support to form consortia for those unable to meet threshold is available.
- Wave 2.1 competition window opens late August / early September 2022.

Further guidance can be found at

<https://www.gov.uk/government/publications/social-housing-decarbonisation-fund-wave-2>

NOTE: This guidance is published in final draft form. BEIS is not planning further changes, particularly to policy design – however, BEIS recognises that upon publication of this guidance there may be clarification questions from landlords that require addressing before guidance is finalised. BEIS will provide a 4 week period for clarifications, ending on 12th August 2022. Appropriate clarifications will then be incorporated and the guidance published in its final form.



[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)

THE SOCIAL HOUSING DECARBONISATION FUND

Wave 2.1 technical criteria:

- Applicants may propose low carbon heating installations in any home, on or off gas grid, provided that the following key principles are complied with:
 - Bills must not increase as a result of the retrofit works, relative to what they would have otherwise been.
 - Post retrofit, homes must comply with SHDF performance outcomes.
 - A fabric first approach must be taken. If the fabric of a home is sufficient pre-retrofit, then an application with low carbon heat alone can be considered for that home, with significant justification required.

Further guidance can be found at

<https://www.gov.uk/government/publications/social-housing-decarbonisation-fund-wave-2>

[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)

THE SOCIAL HOUSING DECARBONISATION FUND

Wave 2.1 further criteria:

- **Digitalisation** – BEIS is offering dedicated support for digitalisation through Wave 2, with four areas of interest:
 - IoT sensors and monitoring platforms for data collection, to support pre-retrofit assessment or post-retrofit monitoring and evaluation.
 - Modelling technology to design retrofit solutions using real world data.
 - Energy efficiency measurement to optimise energy usage.
 - Other innovative digital technologies distinct from typical retrofit practice.

Further guidance can be found at

<https://www.gov.uk/government/publications/social-housing-decarbonisation-fund-wave-2>

NOTE: This digitalisation support is optional, and it is expected that Applicants applying for digitalisation support will have an existing digitalisation strategy.



[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)

INTRODUCING THE SHRA

- The **Social Housing Retrofit Accelerator** (SHRA) directly helps social housing providers develop successful bids for the **£3.8bn Social Housing Decarbonisation Fund** (SHDF).
- Developed with and for the sector, created and delivered by experts, we help social housing providers (local authorities, combined authorities and housing associations) across **England** gain access to funding for major retrofit projects.
- Social housing providers can access a range of **free** support via Turner & Townsend's expert team who are fully-funded by BEIS.
- Local authorities and social housing landlords can apply directly or be a member of a **consortium** bid. We can support in matchmaking consortiums.



[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)

SHDF WAVE ONE SUCCESSES

Over 96% of the total funding allocation was secured by SHRA supported bids.



£3m

average award for bids that received one-to-one SHRA support, compared to **£1m** without



£300k
to **£14.9m**

range of successful SHDF bid amounts – smallest to largest



66 of
the **69**

successful funding awards were supported by SHRA



£173m

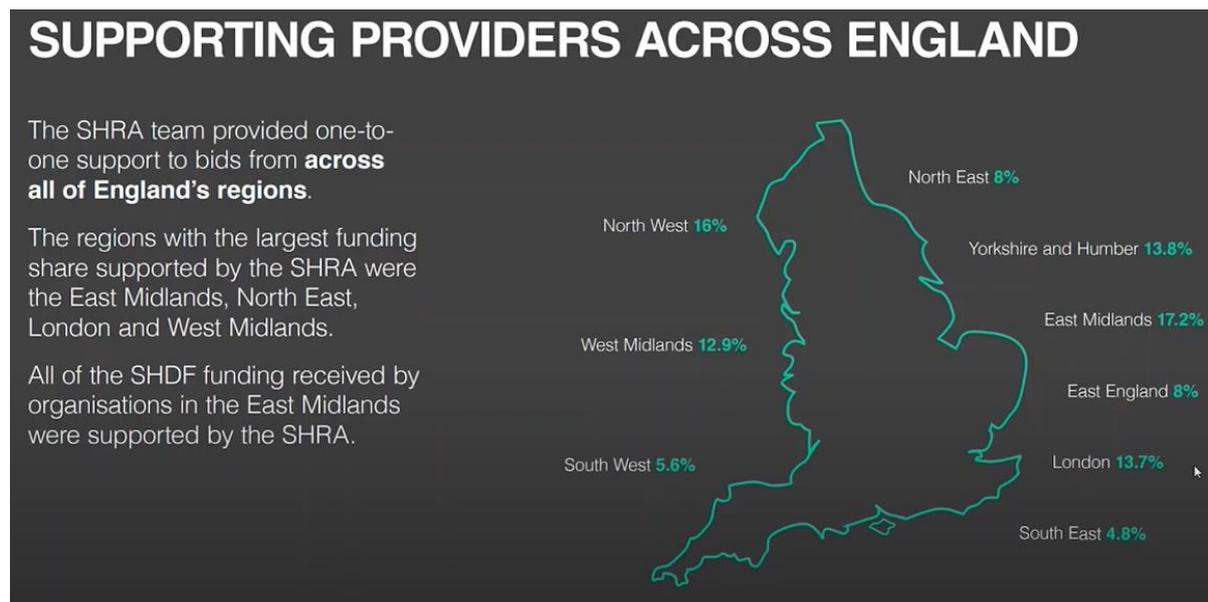
of the total funding secured by SHRA supported bids



159

organisations were represented through the **55** successful SHRA bid awards

[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)



[Introduction to SHRA and SHDF | SHRA Briefing - YouTube](#)

REFERENCES - Wales focussed

[Energy Efficiency in Wales \(gov.wales\)](#) - A strategy for the next 10 years 2016–2026

[Welsh Housing Conditions Survey | GOV.WALES](#)

[-2017-18 welsh-housing-conditions-survey.pdf](#)

Better Homes, Better Wales, Better World - [Independent review on decarbonising Welsh homes: report \(gov.wales\)](#) [Report to Welsh Ministers from the Decarbonisation of Homes in Wales Advisory Group 18 July 2019]. The succinct summary of 7 recommendations included these ones:

- 3. The Welsh Government should put in place the right quality system and delivery mechanisms across all tenures to help achieve the targets*
- 4. The Welsh Government, working with others, should develop a holistic package of support across all tenures to motivate and facilitate action*
- 5. The Welsh Government should collect data about the status and condition of the housing stock to inform future decisions and measure progress towards targets.*

[How much would you pay for a more carbon efficient home? - Institute of Welsh Affairs \(iwa.wales\)](#), by Andy Sutton 20th August 2019 (references Better Homes report)

“Though broadly welcomed as an important first step, the report could have gone further and sought to tackle the current financial and market challenges to decarbonisation which arise from the disconnect between energy and value.”

[Welsh Development Quality Requirements 2021 \(gov.wales\)](#)

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[Constructing Excellence in Wales :: Decarbonising housing isn't just right, it adds value to a home \(cewales.org.uk\)](https://cewales.org.uk)

[When this war is over - WHQ - WHQ](#)

'Decarbonisation: the biggest challenge, the greatest opportunity', Keith Edwards.

[Affordable Eco Housing; is this what we should be building? | 100% Independent, 100% Electric - YouTube](#). Visit to Parc Eirin, with MD of Sero being interviewed.

[Future Generations \(futuregenerations2020.wales\)](https://futuregenerations2020.wales)

[Decarbonisation – The Future Generations Commissioner for Wales](#)

[Homes fit for the Future: The Retrofit Challenge – The Future Generations Commissioner for Wales](#)

[ENG-Exec-Summary-Financing-the-decarbonisation-of-housing-in-Wales.pdf \(futuregenerations.wales\)](#) – see extracts 1 to 4 that follow.



Extract 1

3. Our ambition to decarbonise must be strengthened

Currently Welsh Government is encouraging the social housing sector to work towards the decarbonisation targets set out in the 'Better Homes, Better Wales, Better World' report. However 1.1 million (or 70%) of Wales' housing stock falls under the owner occupied or private rented sectors which currently lack (or have very weak) targets along with appropriate levels of investment or financial incentives.

Given the huge challenge of decarbonising homes, and the potential benefits of a Wales wide long-term programme, we need to ensure delivery at pace and scale.

If cross-sector concerted action is going

- We are also proposing an interim EPC "C" (or equivalent) target for all homes in Wales by 2030. As a minimum, all fuel poor households regardless of tenure should meet EPC "C" by 2030 in order for the Welsh Government to at least match equivalent ambitions by the UK Government for fuel poor homes in England.
- In addition, we propose a ban on the installation of new fossil fuel heating for all homes no later than 2030.

Welsh Government should:

- Determine an ambitious Minimum Energy Efficiency Standard (MEES) or decarbonisation target for the social housing sector, based on learning from the Optimised Retrofit Programme, then prepare a timetable to legislate for this target if needed.

Extract 2

What is an Energy Service Company (ESCO)?

They develop, design, build, and arrange financing for projects that save energy, reduce energy costs, and decrease operations and maintenance costs. They act as project developers for a range of energy saving measures and assume the technical and performance risks associated with a project. They differ from other organisations that offer energy-efficiency improvements in that they use a performance-based contracting methodology. This means the finance generated is directly linked to the actual energy cost savings.

Welsh Government will also need to address the skills gaps, both in numbers and in diversity, which exist for retrofit jobs.

Currently there is a risk that Wales will lose the benefits of job creation because there are not enough people who are

Welsh Government should:

- **Urgently develop a skills pipeline for a Welsh Retrofit workforce.**
Investing in, and developing a long-term pathway, to decarbonise all homes in Wales will provide long-term commitment and security to enable development of skills pathways and employability programmes which will support new jobs that could be created in our foundational economy.
Building on the momentum and investment in the Optimised Retrofit Programme, proposals such as the Retrofit Academy for Wales should be supported and scaled up across Wales.
- **Adopt a Retrofit Plus approach - broadening the Retrofit programme to support community involvement and neighbourhood regeneration.**
Investment at scale in Welsh

Extract 3

5. Wales should target the worst homes first in order to maximise the benefits of reducing fuel poverty and addressing decarbonisation.

Many Welsh homes remain in a dire state and thousands of households live in 'severe fuel poverty' requiring over 20% of their income to maintain a satisfactory heating regime.

While the Welsh Housing Quality Standard, Arbed and Nest programs have made significant inroads in reducing it, 155,000 (12%) of Welsh homes remain in fuel poverty: 20% of the Private Rented Sector, 11% of owner occupiers and 9% of social housing tenants live in fuel poverty. Any decarbonisation programme must target these worst performing homes first as a matter of urgency.

Welsh Government should:

- Ensure that their long-term pathway reflects the phasing needed to prioritise funding and support for decarbonising social housing and homes in fuel poverty

Conclusion

This work has demonstrated the level of infrastructure investment needed to improve and decarbonise (retrofit) homes in Wales – this will not only address our climate crisis but will also reduce fuel poverty, improve health outcomes, create thousands of new jobs and support the development of local supply chains to support the foundational economy. A national programme should be an urgent priority for the new Government to support a green, equal and just recovery.

Our in depth research and modelling has shown how much funding is needed up to 2030, the potential sources of funding for different sectors as well as models for delivery. Recommendations for UK and Welsh Government as well as other key players show that this can be achieved with long-term commitment supported by a long-term programme which should be put in place urgently.

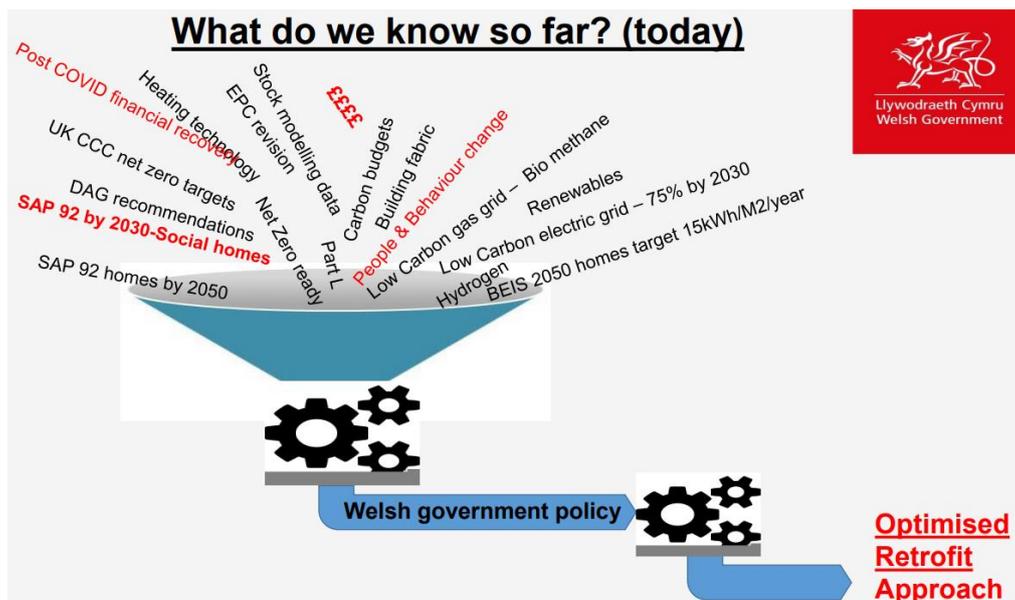
Extract 4

[Health and housing: the link | The health and housing link has become more obvious since the pandemic, giving people a real sense of where and how they live. It's also presented... | By Community Housing Cymru | Facebook](#)

[WPA are proud to be sponsoring Community Housing Cymru Decarbonisation Conference 2021 \(welshprocurement.cymru\)](#)

[Decarbonisation and Energy Efficiency \(N8\) | Frameworks | WPA \(welshprocurement.cymru\)](#)

[Energy Efficiency Consultancy Services N8C | Frameworks | LHC \(welshprocurement.cymru\)](#)



Webinar: 26th January 2021

Goals of Optimised retrofit for Net Zero ready

Avoid over investment at all levels ✓
 Solution appropriate to each home (passport) ✓
 No regret actions that can be built upon in future ✓
 Energy efficient to be robust to fuel cost increases ✓
 Best Carbon vs capital cost vs fuel cost performance ✓
 DSR flexible and smart (IES), grid connected and progressing along the route to net zero capable in readiness for low Carbon energy supplies ✓

Fabric retrofit Measures

- Draught-proofing
- Well insulated Loft
- Thermally efficient windows and doors
- Airtightness
- Ventilation
- Wall insulation (CWI)
- Wall insulation (EWI)
- Wall insulation (IWI)
- Floor insulation

Technology Measures

- A-rated gas boiler – grid connected
- A-rated LPG boiler with wet heating system
- Smart hybrid heat pump system
- Smart grid connected heating controls (IES)
- Battery storage
- Solar Panels
- Heat storage
- Active homes thermal panels
- Advanced PV Fabric systems

Competency Measures

- Low levels of cost or technical competency
- Moderate levels of cost or technical competency
- Higher levels of cost or technical competency

Webinar: 26th January 2021

- Retrofitting of homes has long been recognised as a key tool in economic recovery
- Evidence shows that for every £1.4 million of investment in the delivery of domestic energy efficiency, 32.6 jobs are created / supported (Source: The value case for decarbonising homes in Wales literature review, Cardiff University, 2020)

Previous housing retrofit projects have demonstrated multiple benefits which could enable a Green-led economic recovery creating:

- local jobs to build the foundational economy
- contribute to decarbonisation
- provide skills
- tackle fuel poverty
- provide better homes

REFERENCES - Construction / Housing / Finance / Energy / Valuation

[Big Issues Webinar Series On Demand \(futurebuild.co.uk\)](https://www.futurebuild.co.uk)

[Edge debate #130 - Futurebuild Big Issues Seminar - Materials must change — Edge Debate](#)
“**We cannot achieve net-zero construction without net-zero construction materials**”.

[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)

“Climate and ecological breakdown are intertwined and leading to an emerging crisis for human health across the planet with the physical impacts of heatwaves, food insecurity, reduced soil fertility, water shortages, extreme weather events, wildfires, the spread of diseases through mosquitoes which will be more prevalent in the UK as the result of climate change etc; the social and economic impacts of climate migration, economic breakdown all impacting on human physical and mental health. There are synergistic interactions between climate change and health and these are likely to be felt more intensely in urban areas in the UK, especially in those of social and economic deprivation with of course the global threat to rural workers, agricultural and food supply chains that will affect us all.

Our professional institutions, local authorities et al have declared “a climate and ecological emergency”. That is step one. Step two is taking action and this must be taken at all levels – personal and professional. Dr Hugh Montgomery will explain why climate change is the greatest threat to global health and set the scene for a conversation on how built environment professionals can and should respond as now is the time for positive responses, with no time for despair. **There is much that built environment professionals can do to meet this emergency.**”

[Edge debate #132 - Futurebuild Big Issues Seminar - The industry needs to undergo radical change to achieve net-zero and respond to the climate emergency – how should that happen? — Edge Debate](#)

“We have been set the goals – energy efficiency improvements to all buildings by 2030 and net zero carbon emissions by 2050, requiring a 12% reduction in heat demand every year to 2050.

We also know the measures to take, but do we have an industry ready to deliver? **How can our industry be transformed to achieve the task – it is a challenge equivalent to nationwide wartime retooling – do we have the outline of a plan?**”

[£420m to be invested in smart construction | The Planner](#)

Reducing emissions held back by construction skills gap

Advances in the reduction of greenhouse gas emissions have been held back by the skills gap in construction, housing design and the installation of new technologies.

The Committee on Climate Change (CCC) said this is the result of the UK Government “chopping and changing” policy.

[retrofitting-to-decarbonise-the-uk-existing-housing-stock-v2.pdf \(rics.org\)](#)

The pace of retrofitting homes is lagging. The barriers to scaling up the uptake of energy efficient measures in domestic housing have been well documented by existing literature,

and are reviewed within this paper, with the main barriers continuing to be an obstacle across the fields of regulation, finance, data, sector capacity and consumer drive. Underpinning these barriers is the lack of a Government policy roadmap providing clarity and certainty on the route to a net zero 2050.



...the relevance and significance of sustainability and environmental matters should form an integral part of the valuation approach and reasoning supporting the reported figure.

RICS Global Standards - Valuation "Red Book", VPS 3, 2.2, effective 31 January 2020

We recognise that mortgage lenders can play an influential role in creating greener homes too. We are currently engaged with government and various lenders to discuss the role green mortgages will have on property valuations in the future. It is important that any system that is created does not price people out of buying a home. We are also consulting on an update to our Red Book which expands on the role of ESG and sustainability in valuations – something that will support a greener housing market in the future. Over the last year RICS has also been developing a new Global ESG guidance for valuation – a practical approach [Global ESG guidance for valuation – a practical approach \(rics.org\)](https://www.rics.org/global-esg-guidance-for-valuation) 7th October 2021.

Bank of England illustrates the vulnerability of real estate portfolios

The Bank of England derived the following future value changes in real estate assets caused by climate risks

Real Estate Assets	Value change from transition risks			Value change from physical risks		
	A	B	C	A	B	C
Global Average (incl. other regions)	-10%				-15%	-30%
North America	-10%				-15%	-30%
Europe	-5%				-8%	-15%
Asia Pacific	-20%				-30%	-60%

Scenario Definitions:
 A - sudden transition to well below 2°C (Year 2022)
 B - orderly transition to well below 2°C (Year 2050)
 C - 4°C increase in global temperature (Year 2100)

Source: Bank of England / PRA Stress Test Guidance, 2019

Focus today

Risk and scenario analyses and asset valuation

May 2020

Extract from PWC presentation, Germany

[Financing-energy-efficient-buildings-the-path-to-retrofit-at-scale.pdf](#), via the Green Finance Institute.

In December 2019, the Green Finance Institute established the Coalition for the Energy Efficiency of Buildings (CEEB) to stimulate action across the finance sector to support the

decarbonisation of our homes. The Coalition's market review was structured to explore the three main tenures: owner-occupied, private-rented and social-rented homes. A 60-second summary is conveniently available on the opposite page.

The Green Finance Institute report refers to Welsh Government's Implementation Group on the Decarbonisation of Existing Homes in Wales. The Welsh government has signalled it will collect data knowledge about the status and condition of the housing stock to inform future decisions and measure progress towards targets. This includes energy consumption data from before and after retrofit activities to inform the measurement of progress, policy development and investment.

-  This report sets out the findings to date and the intended next steps of the Coalition for the Energy Efficiency of Buildings.
-  Established by the Green Finance Institute in 2019, the Coalition brings together a powerful multi-stakeholder group focused on developing market solutions to scale up the finance needed to retrofit UK homes to high standards of energy efficiency, and deliver significant social and environmental benefits.
-  Building on existing research, international best practices, and a focused review of the state of UK market for financing energy performance retrofits, the Coalition puts forward 21 scalable demonstrator projects, designed to overcome the barriers to mobilising capital towards the social-rented, private-rented and owner-occupied residential sectors.
-  The Coalition will take forward a portfolio of these demonstrator projects, helping to practically demonstrate the viability of much-needed financing solutions for energy efficient buildings, both in the UK and across the globe, in the run-up to important UN climate talks to be co-hosted by the UK and Italy in 2021.
-  The report identifies further government policy measures that would help bolster the commerciality and scalability of the demonstrators and respond to the social and economic impacts of the Covid-19 pandemic. A key recommendation is the inclusion of both energy efficiency and climate resilience investment in the government's economic recovery plans.
-  The report outlines further areas of work the Coalition will explore with a growing network of stakeholders, as it continues its uniquely collaborative and pragmatic approach to this critical agenda.

[Green Finance Institute Report – 60-second summary](#)
[Financing energy efficient buildings: the path to retrofit at scale](#)

Buildings – a priority for decarbonisation, investment and economic recovery

The UK housing stock is responsible for approximately 20% of the country's total greenhouse gas emissions, and the challenge of decarbonising our built environment could result in a 40% shortfall to our economy-wide decarbonisation targets by 2030¹, unless it is addressed at pace.

As climate shocks - including flooding and heat waves - continue to strike with increasing impact, increasing the resilience of UK buildings to the effects of climate change and reducing the number of households at risk of fuel poverty will be critical in ensuring that our economy and society can thrive in the longer term.

Climate breakdown is not, however, the only global crisis we currently face, with governments and citizens also confronted by the social and economic impacts of the Covid-19 pandemic. The construction sector is facing significant challenges and should be considered as a central pillar of a longer-term green stimulus package.

Energy efficiency measures and other building retrofit works are among the most cost-efficient ways to reduce emissions, with many co-benefits including improved living standards, healthier and more resilient communities, and the delivery of new, skilled green jobs in every part of the country. Focussing on buildings will therefore help the UK deliver on its climate targets, support a green and inclusive recovery, and generate innovative green finance opportunities.

[Green Finance Institute Report – Executive Summary](#)
[Financing energy efficient buildings: the path to retrofit at scale](#)

This decade will be defined by our collective response to the twin crises of climate breakdown and the coronavirus pandemic. The finance sector will play a crucial role in providing the capital required to deliver an impactful and inclusive response, in partnership with government.

While the housing sector will be heavily impacted by the Covid-19 health crisis, it also represents a critical component for regenerating our economy and meeting the UK's net-zero ambitions. Coordinated and collaborative action is required to stimulate the market and reduce carbon emissions, currently at 20% of the UK's total emissions, to achieve our 2050 target.

The Coalition for the Energy Efficiency of Buildings, convened by the Green Finance Institute, is working to develop the market for financing net-zero carbon and climate-resilient buildings in the UK by accelerating the pace of financial innovation. This report has presented the findings of the Coalition's 52 member organisations to date: assessing the market for energy efficiency improvements in UK homes and identifying specific initiatives where financial services and government can bridge investment gaps and drive systemic change.

Coalition members have already started to develop and launch a portfolio of scalable 'demonstrators' of financial and finance-enabling solutions, working alongside international partners to adopt and share best practices. There are huge opportunities for positive and mutually-reinforcing synergies between the demonstrators presented in this report.

Importantly, innovations on data and industry-recognised standards can establish a firm foundation upon which to develop many financial products.

Clear and ambitious policy signals provide a roadmap for the financial services and other sectors to navigate the journey towards low-carbon housing. In the wake of the coronavirus crisis, a green and just stimulus package will be essential to support the UK Government's commitment to the Paris Agreement. The availability of public finance to support scaled and ambitious retrofit programmes could help unlock economies of scale across the supply chain costs, thereby making investments in home decarbonisation and resilience more attractive for consumers and the private finance sector. This could build upon existing policy and manifesto commitments to increase the energy efficiency of homes and address fuel poverty.

In the aftermath of the coronavirus pandemic, mobilising finance towards the deep retrofits required for the UK's housing stock can unlock both environmental and social benefits as part of the UK's economic recovery. The Coalition's work to develop the market for financing net-zero carbon and climate-resilient buildings will play an important role, both in the run up to COP26 and in the years beyond.

Green Finance Institute Report
Conclusion: a decade of recovery and regeneration
Financing energy efficient buildings: the path to retrofit at scale

[Climate-related stranded assets in real estate part 1: Driving change and de-risking real estate \(rics.org\)](#)

[Climate-related stranded assets in real estate part 2: Is energy performance the best indicator? \(rics.org\)](#)

[Climate-related stranded assets in real estate part 3: Attitudes, valuation and retrofit \(rics.org\)](#)

'With the CRREM [1] project, we had to create a roadmap. I found that daunting. Particularly because the real estate sector is recognised as contributing over 40% of GHG emissions globally. The sector has a huge problem, but it also offers huge potential to reduce carbon emissions globally.'

Response to the Welsh Government consultation - Decarbonisation of housing in the private housing sector
Submission by Robert I Chapman, Dip. Est. Man. (Hons), M Sc (Regen), Surveyor, Affiliate RTPI, MIED, FRSA
Independent, Strategic Property Adviser and Regeneration Practitioner

‘Sometimes people see real estate assets as distinct from the economy and society, but fundamentally, it's where people live, where they carry out their work, the infrastructure is how you travel around. So stranded assets in real estate are systemically related to everything we do.’

‘It's been difficult to find an objective premium – how much extra value there is in a sustainable building. I think further exposing the stranded asset threat makes the case for retrofit and property adaptation. It's about people paying more, it's the recognition that if they don't do it, their properties' value reduces. So the next 20 years will see a lot of change.’

‘.....the very techniques that we use to value property don't really account for climate related stranding.’

‘Break clauses, income security, covenants, length of income, and average unexpired term are already monitored. Often the bit missing in the portfolio management is the physical nature of the building: its physical performance on things like fossil fuel exposure, and the likely cost of retrofit and adaptation.’

[Climate-related stranded assets in real estate part 4: Who pays for change? \(rics.org\)](#)

[CRREM - Make decarbonisation measurable & Manage Carbon Risk](#) – Carbon Risk Real Estate Monitor

[Suspect foundations: Developing an understanding of climate-related stranded assets in the global real estate sector - ScienceDirect](#)

[GFANZ: Net zero financial alliance launches - Climate Champions \(unfccc.int\)](#)

[COP26 & The Glasgow Financial Alliance for Net Zero \(GFANZ\) - YouTube](#)

[Green Homes Incentive - Dev Bank \(developmentbank.wales\)](#) – great, but what about the older housing in Wales which represents the majority.

Minimum Energy Efficient Standards [Domestic private rented property: minimum energy efficiency standard - landlord guidance - GOV.UK \(www.gov.uk\)](#)

[The domestic private rented property minimum standard \(publishing.service.gov.uk\)](#)

[\[Withdrawn\] Green Home Finance Innovation Fund competition \(closed\) - GOV.UK \(www.gov.uk\)](#) – the key word here is ‘withdrawn’. Short-termism does not give certainty.

EPCs (Energy Performance Certificates)

[Buying or selling your home: Energy Performance Certificates - GOV.UK \(www.gov.uk\)](#)

[Business Matters: New 2025 proposed EPC regulation changes | Blogs | Insider Media](#)

REFERENCES – Skills / Education

PAS2035 is about regulating the process -_the project management process - in 6 steps

1. Outcomes: comfort, energy, carbon
2. Whole house assessment - clear focus on ventilation / fabric / services.
3. Risk assessment: conflicts between different measures
4. Design and coordination
5. Installation
6. Monitoring and evaluation



The Retrofit Academy publications



Michael Holden MBA FRICS FCABE · 1st



NAEA propertymark president elect. Fellow of NAEA and ARLA.
Michael Holden Chartered Surveyors. Offices in Cumbria, the...
1h · Edited · 🌐

A subject where there are strong views - a detailed investigation and definitive research into the use of retrofitted spray foam insulation within housing is urgently needed.

This will help to inform whether the products used (and crucially, their application) and installation (certification and approval) are appropriate and provide detailed information to lenders and homeowners alike who are naturally concerned about protecting their investments.

RPSA and the PCA have led the way here but I feel RICS (as they have most money and tens of thousands of surveyor members worldwide) need to invest in research led by a major university with RPSA /PCA at the top table alongside other key stakeholders, professionals and market leaders such as representation from CABE, BRE, CIOB, Propertymark, conveyancing and heritage bodies etc.

This would be an ideal commission for a national RICS residential surveying board.

Specific areas could be selected such as :

Pre war housing types
Post war housing types
Modern era housing
Conventional v non conventional housing
Heritage protected buildings (presumably to confirm its inappropriateness).

There is plenty of evidence to call upon of installations, I have seen it quoted that there are over 250,000 installations, it now just needs coordinating with all key stakeholders involved.

It's potentially a massive market.

Insulating (retrofit) is the way forward for many properties and it shouldn't be a dirty word, hopefully being a precursor to less carbon intensive power generation and a wider coordinated government energy policy how we heat and ventilate our homes to meet the challenges of global warming.

[#research](#) [#energy](#) [#housing](#) [#university](#) [#powergeneration](#) [#money](#)
[#leaders](#) [#housingmarket](#)

A comment on LinkedIn from a highly experienced operator
making the point for investment in research



Edge Education Roundtable ED133

Are new entrants to built environment courses adequately informed and prepared for the climate and ecological challenges that they will be dealing with in both their training and careers?

30th June 2022

Those entering the built environment professions today will be expected to rapidly develop the skills and ability to ensure that the projects they deliver have net zero carbon emissions and

[Edge Education Roundtable #133 – 30th June 2022, 16.30 – 18.30 – Edge Debate](#)

Listen to Josh Tregale at circa 30 mins-in. The resume of notes taken at this recent meeting are worthy of serious consideration – [Notes Edge Education Roundtable 220630 \(squarespace.com\)](#). My brief notes are set out below.

- Golden thread
- Educating the BE sector – huge challenge
- Moving silos
- Common framework – sharing information – cross profession learning
- New business models and licensing – need to support educators – ClimateFramework.com – drive adoption – cross industry open source
- Mandatory CPD requirement(s)
- Where are their immediate opportunities to address CC
- CPD – huge opportunity – climate framework
- massive issue with innovation
- Education and legislation
- capacity to deliver – evidence of how to solve problems
- lack of educational direction at secondary school
- Who teaches the teachers
- Supporting young professionals in practice
- Making better use of retired professionals
- Accreditation

It goes without saying that beyond schools and places of further education (Colleges / Universities etc), the professional bodies need to be doing more.

APPENDIX 1: Climate Emergency – Context



Yes – We all need to wake up



Our Children's Trust



Climate
Change
Committee

Home About News

Current programmes will not deliver Net Zero

The urgency of moving away from fossil fuels, securing energy supplies and cutting carbon emissions has never been clearer, but a new Progress Report by the independent Climate Change Committee (CCC) finds major failures in delivery programmes towards the achievement of the UK's climate goals.

[Climate Change Committee](#)



“You cannot escape the responsibility of tomorrow by evading it today”

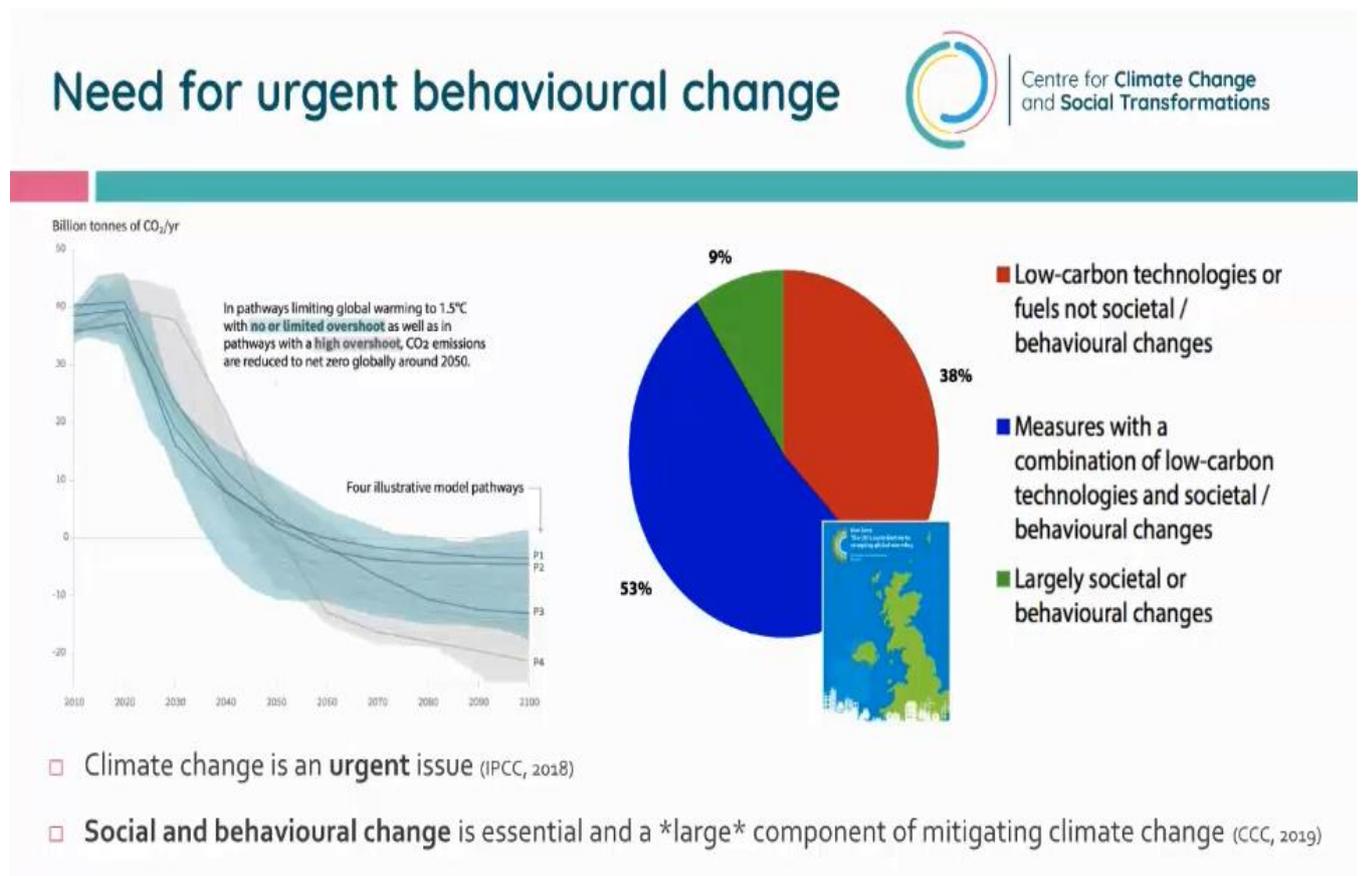
Actions are required NOW

“How wonderful it is that nobody need wait a single moment before starting to improve the world.”

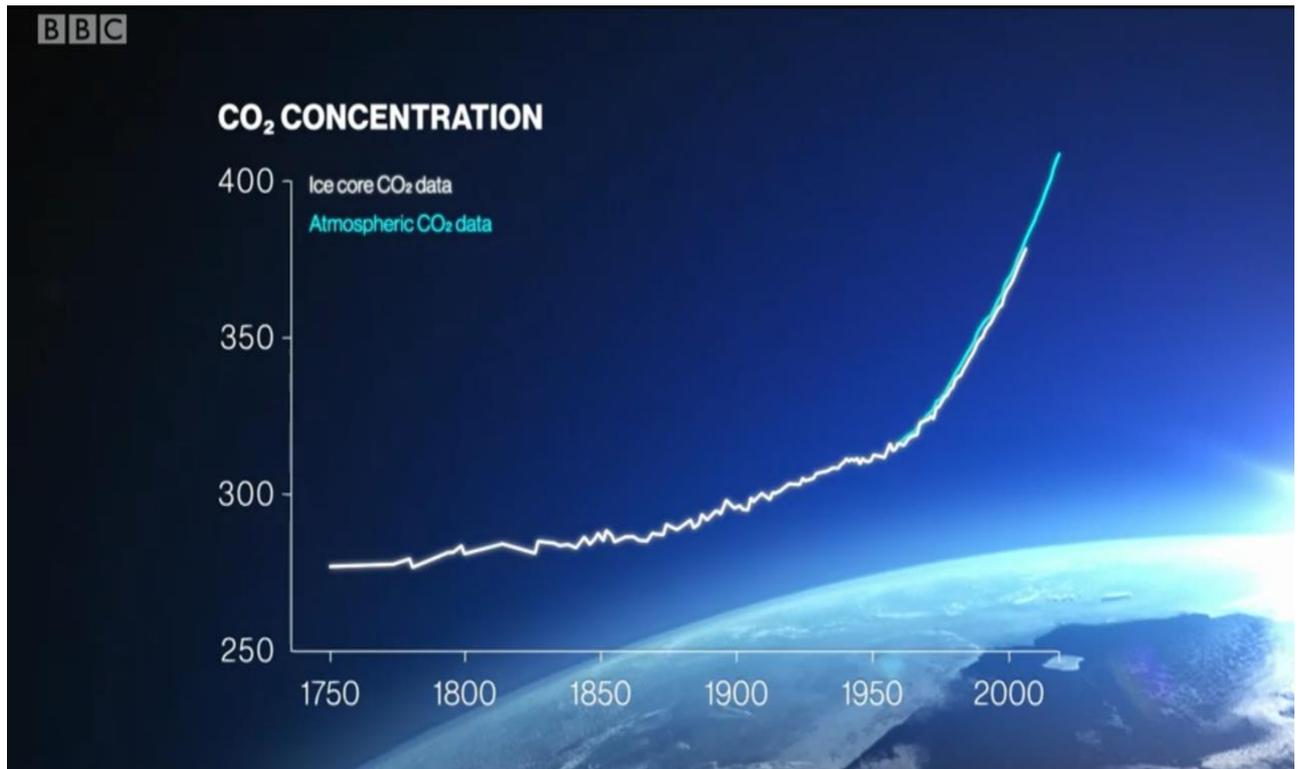
Written on the 26th March 1944:

Anne Frank: 1929 - 1945

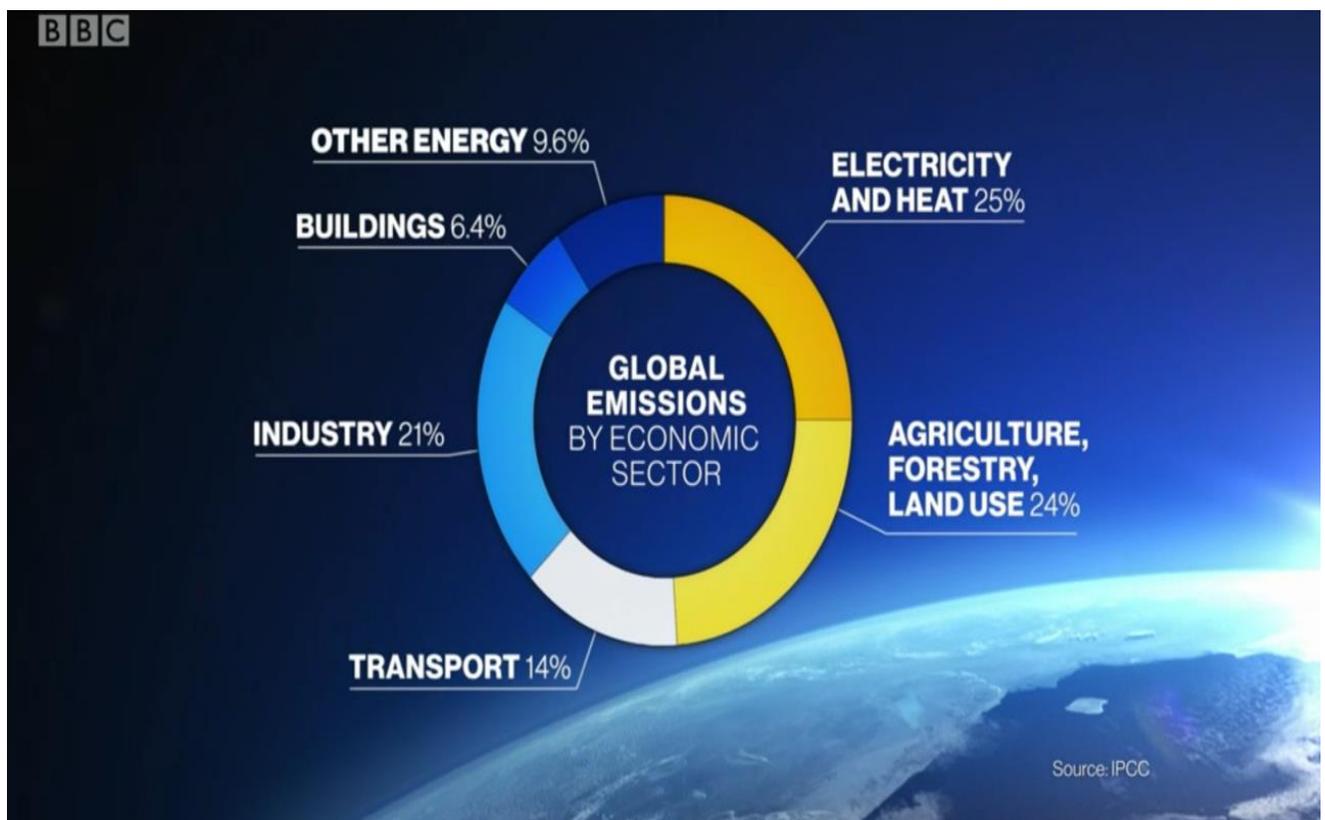
Don't procrastinate - DO



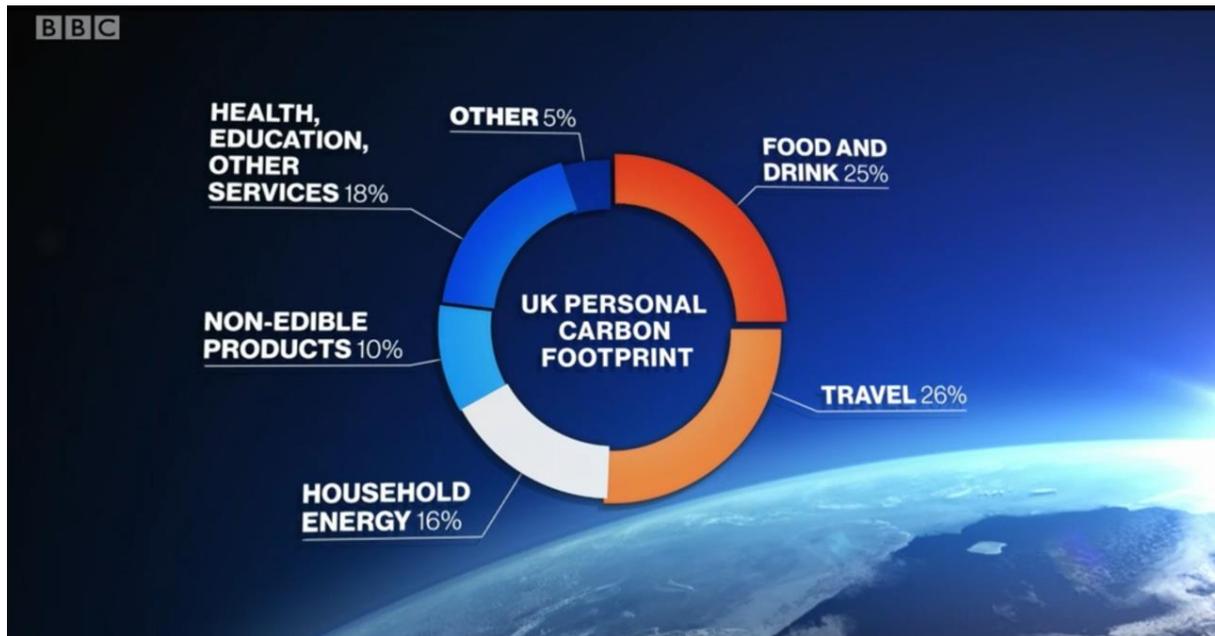
Behaviour Change is the big challenge which must be addressed



CO₂ Concentration



IPCC – contribution to emissions by economic sector



Our Personal Footprint



UN Nature Report



MPs warn 5.2m properties at risk of flooding

Local authorities lack the resources they need to help protect vulnerable communities from flood risks, a group of MPs has warned.

[The Risks of Inundation are increasing](#)



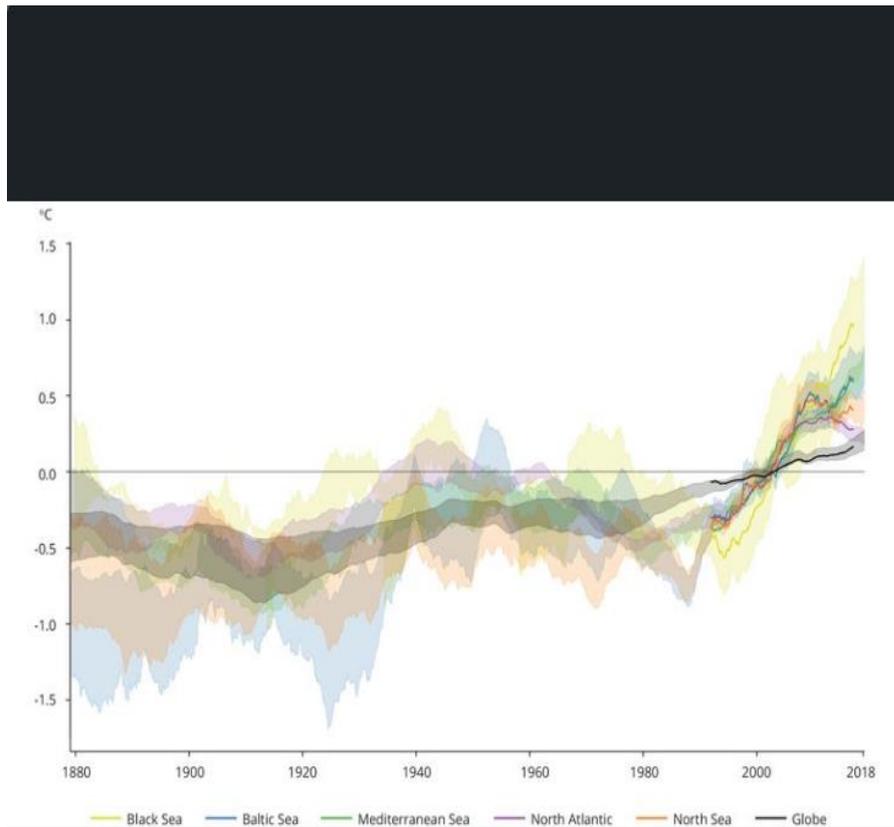
UK rain is going to get heavier

Image Credit : "Rain" by Ben Chapman via Flickr is licensed under CC BY 2.0
December 2, 2019

The United Kingdom will see heavier rainfall according to a new research by led by Dr Markus Rau and Dr Yi He of the Tyndall Centre for Climate Change Research at the University of East Anglia. This is the first analysis of the effect of global warming on hourly rainfall for the UK.

A globally warmed atmosphere holds more moisture. As rising temperatures intensifies the water cycle it increases evaporation, resulting in more storms. The intensity of rainfall depends on how much water the air can hold at a given time. The air can hold up to 7% more moisture for every 1C of temperature rise.

Highlighted by H R Wallingford



Afallen
1,740 followers
23h •



This beautiful piece of data should add to the concern we have about the heating of our planet, and to our resolve to do even more to fight against the systems that perpetuate GHG emissions.

It's a depiction of the increase in temperature in our seas and oceans, courtesy of the [European Environment Agency](#)

<https://lnkd.in/d/RXV7NR?>

#ClimateChange #Environment #Sustainability #Oceans

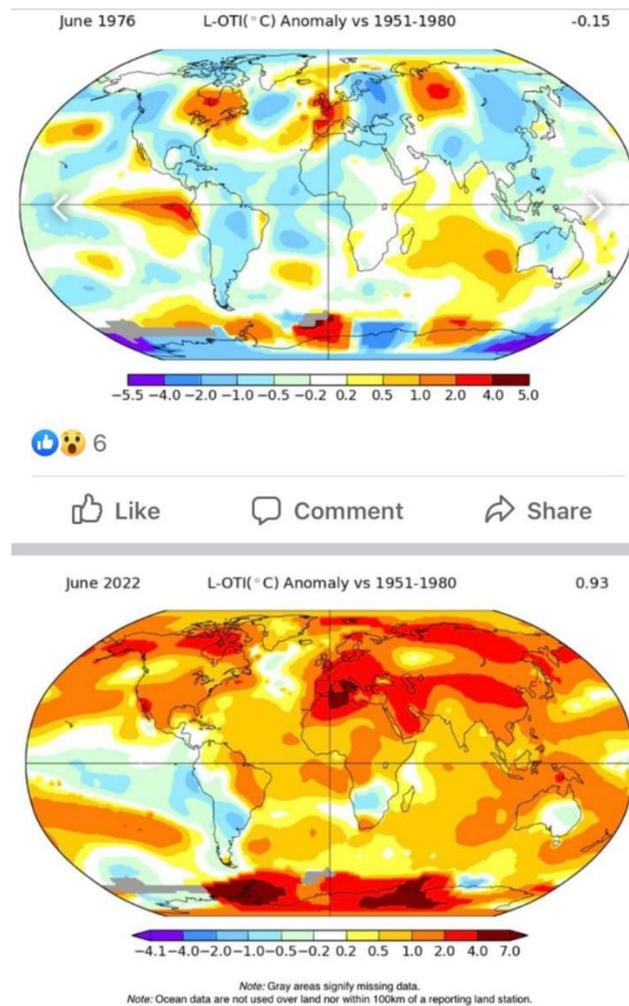
1 • 1 comment

Like Comment Share Send

Highlighted by Afallen on LinkedIn



[Extract: BBC Two – Big Oil v The World](#)



Global Heat Maps: top 1976 – bottom 2022

1.1°C clearly unsafe

Currently on target for 1200ppm and <5.5°C by 2100

Proc Natl Acad Sci USA. 2020 Aug 18;117(33):19656–7.

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[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)

Global temperatures are likely to rise more than 2C above pre-industrial levels by 2100, with even the most optimistic scenario passing the Paris agreement's 1.5C goal



Guardian graphic. Source: Climate Action Tracker, Warming Projections Global Update - November 2021

Climate Action Tracker via Guardian

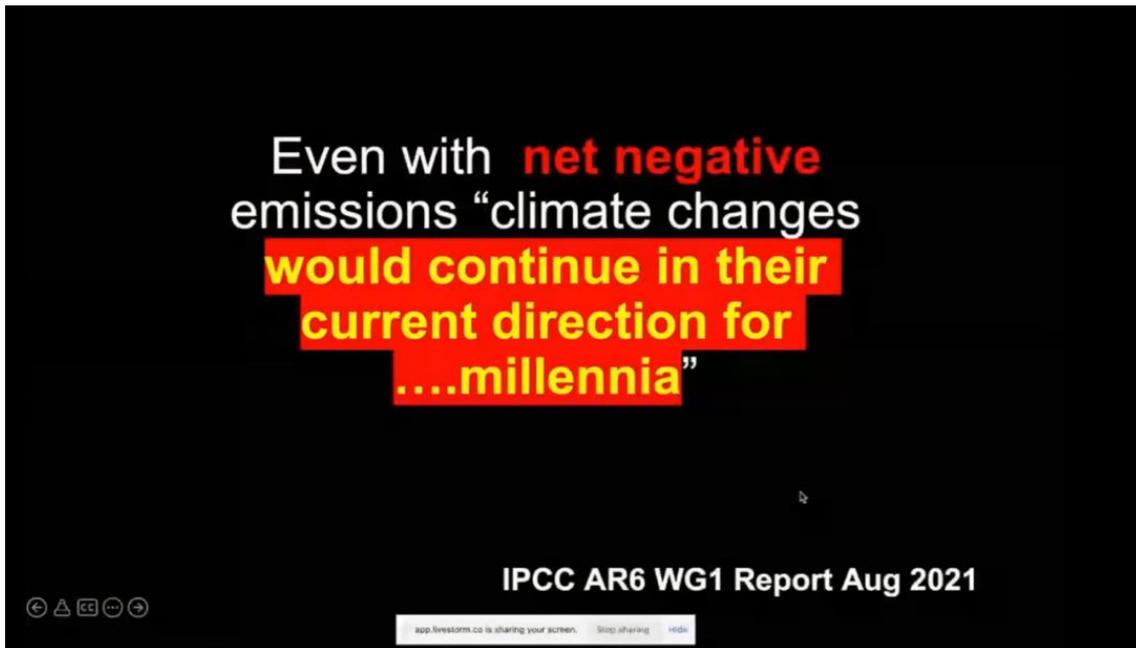
Met Office 10th May 2022

The chance of global average temperature exceeding 1.5°C above pre-industrial levels by 2026 is now about 50:50 (48%)

⏪ ⏩ 🔍 🗨️

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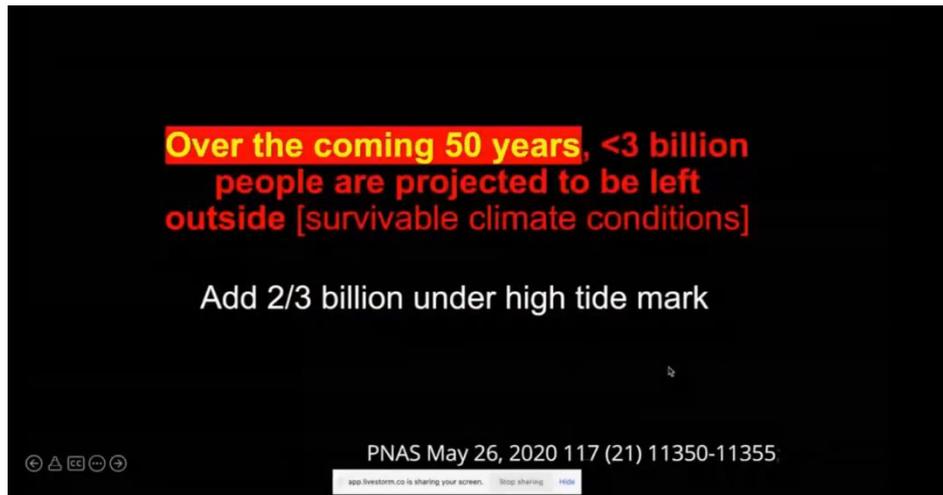
[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)



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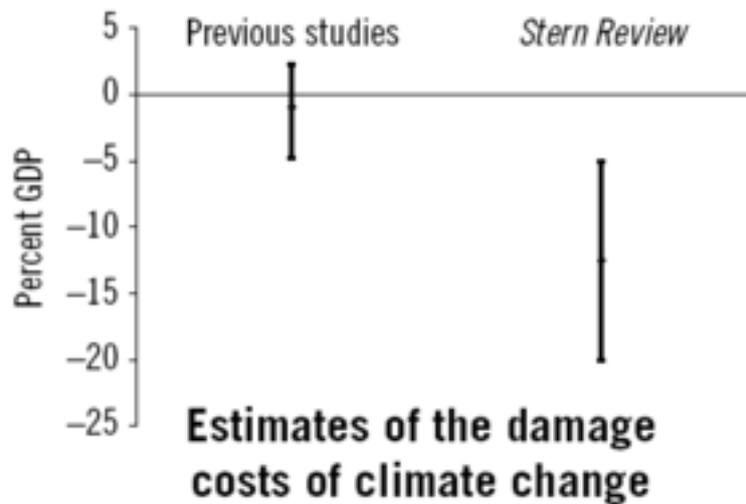
[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)



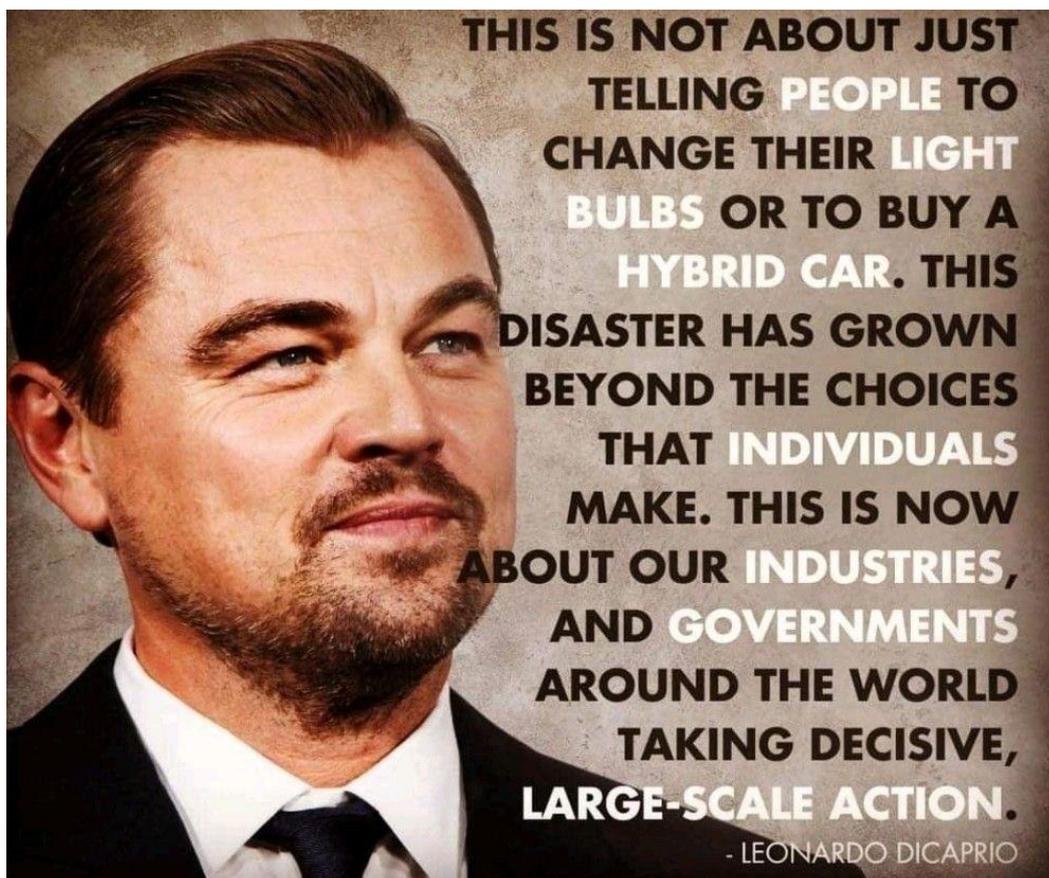
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[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)

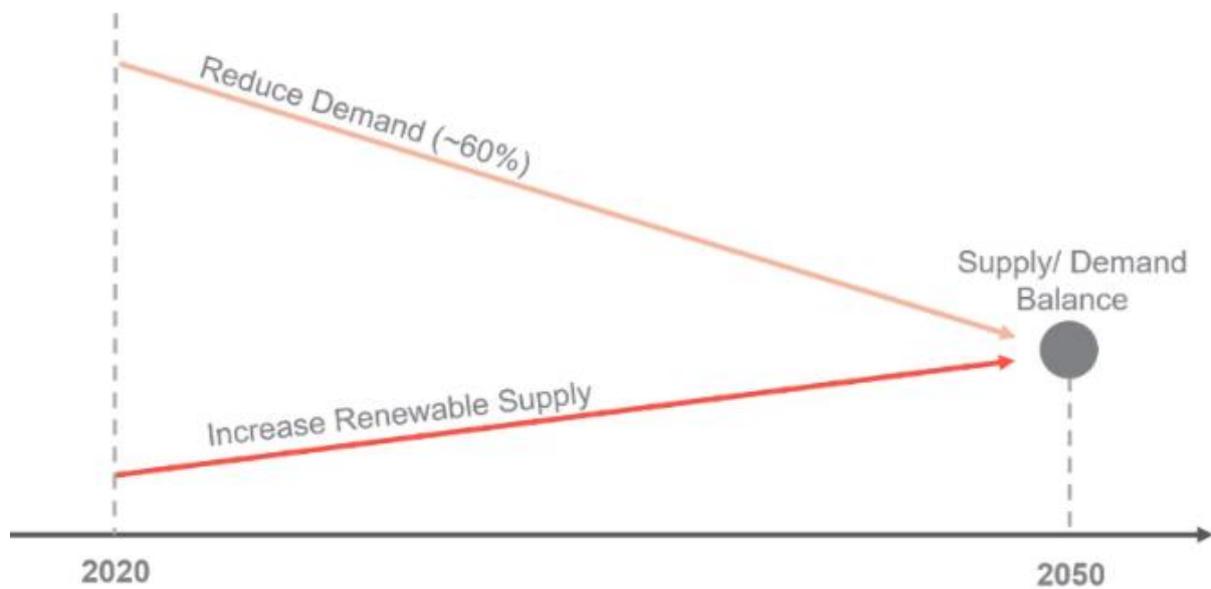


Economic Impact



Actor in Film: Don't Look Up – Large Scale Action is Required

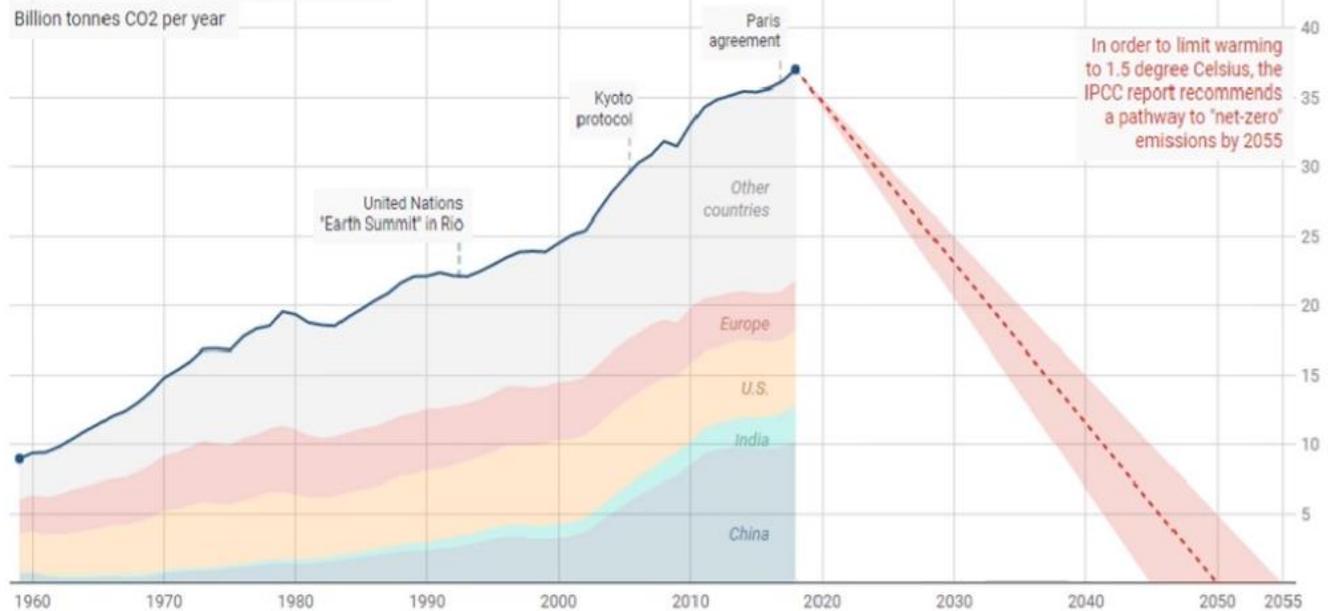
Defining Net Zero



Included in a presentation by ARUP

Global Carbon Emissions

Billion tonnes CO₂ per year



Source: Global Carbon Budget 2018 - Get the data - Created with Datawrapper

Global Carbon Budget 2018

1.5°C versus 2.0°C

The IPCC (Intergovernmental Panel on Climate Change) predicts that increasing from 1.5 degrees of global warming to 2 degrees could mean:

- 1.7 billion more people experience severe heatwaves at least once every five years
- Seas rise – on average – another 10 centimetres
- Up to several hundred million more people become exposed to climate-related risks and poverty
- The coral reefs that support marine environments around the world could decline as much as 99 percent
- Global fishery catches could decline by another 1.5 million tonnes

Source: Climate Reality Project. IPCC.



Source: Climate Reality Project. IPCC

1.5°C versus 2.0°C

The UK Met Office highlights the following risks to the UK in the event of warming beyond 2.0°C:

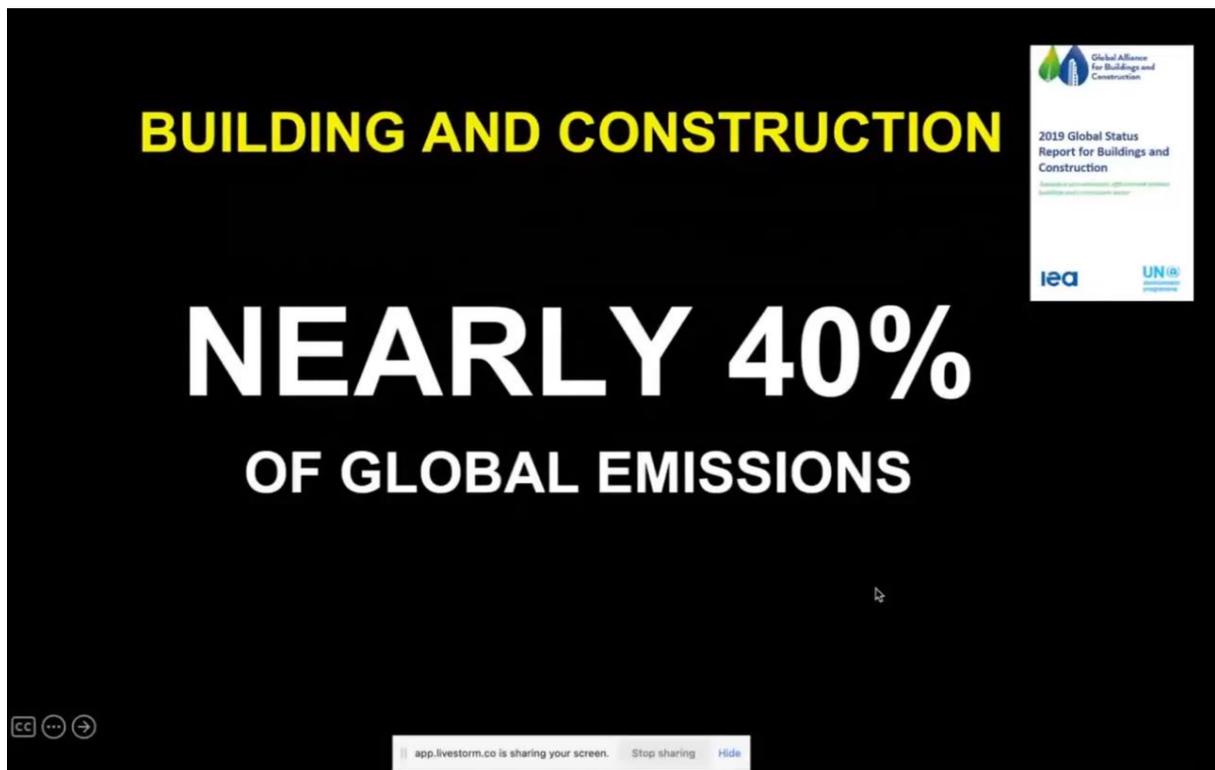
- Low-lying and coastal regions in serious danger of flooding
- Threats to farming and domestic food security
- Increased drought and water insecurity
- More frequent floods, storms and extreme heat causing damage to buildings, transport and human health
- Increase summer heatstroke...during the summer heatwaves of 2003, 2006, and 2009 there were an estimated **2,980** excess deaths

Source: MetOffice.co.uk, Robert Graves and Didier Madoc-Jones

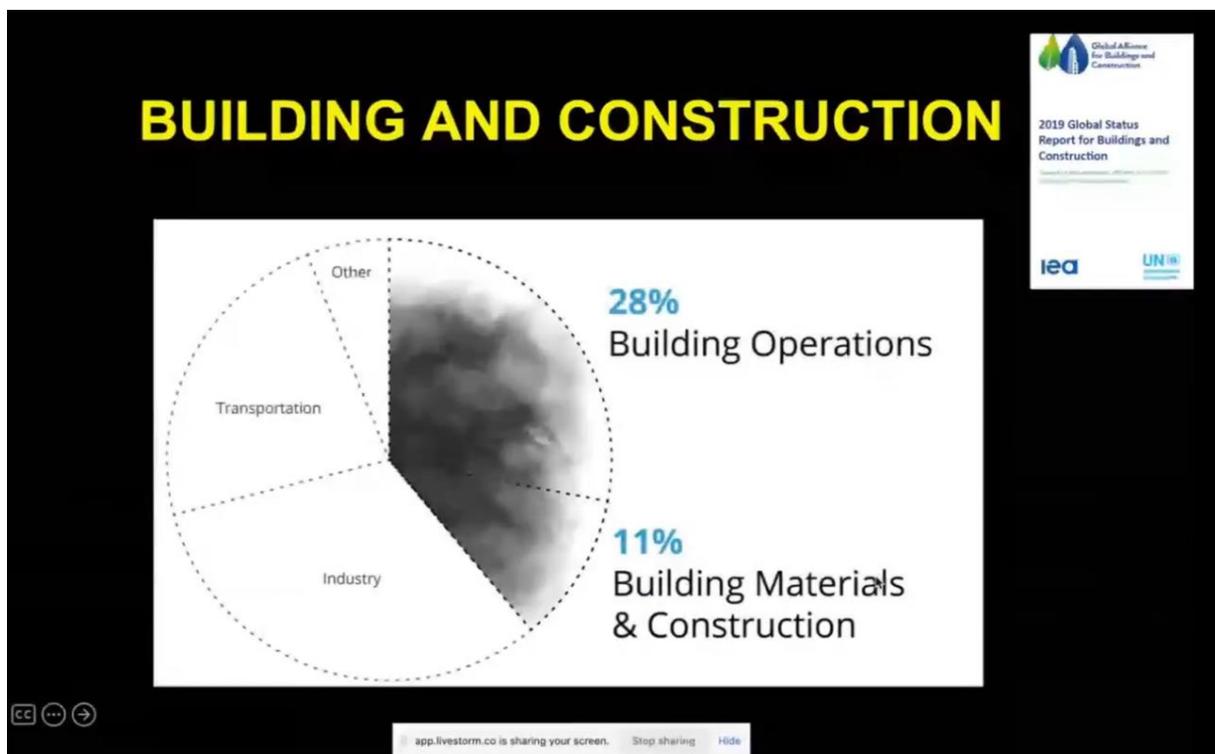


Source: MetOffice

APPENDIX 2: The Built Environment



[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)



[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)

Building intervention points

- Point-Of-Sale
- Major renovation
- Building systems, materials and equipment replacements
- Capital improvement cycles
- Zoning or use changes
- Life-safety and resiliency upgrades (e.g. seismic, flooding, fire prevention, power disruption)

[Edge debate #131 - Futurebuild Big Issues Seminar - Climate change is a health emergency – so how should we respond? — Edge Debate](#)

“CO2 emissions from the operation of buildings have increased to their highest level yet at around 10 GtCO₂, or 28% of total global energy-related CO₂ emissions”

UNep December 2020

“80% of buildings we will have in 2050 are already built”

UKGBC



[Source: UNep](#)

Addressing the Climate Crisis

Creating the case for the real estate industry to address the climate crisis

- 40% of all emissions
- 35% of all energy
- \$135B in property damage by 2045
- 40% of all raw materials
- 4.4% - 7.7% premium in rents
- Green buildings trade 27.3% higher

WWW.CRETECHCLIMATE.COM

Source: [CRETECH Climate](http://www.cretechclimate.com)

40% of global CO₂ emissions are related to our building and built environment.

80% of energy use over a building's life cycle is from the building's operation phase—known as operational energy.

75% of the global workforce work in facilities such as offices, hospitals, schools, warehouses, universities, retail centres, factories, government buildings and hospitality.

35% of the total volume of waste generated globally comes from our buildings.

The role of the Built Environment

Carbon Emissions from buildings

Why are residential buildings so important?

Why can't we focus on improving standards for new buildings?



Carbon Emissions from buildings

The Value Chain



Land. Development. Financing. Investors. Authorities. Construction. Valuers. Insurers. Operators. Managers. Accounting. Reporting. Returns. Prosperity. Work. Life. Play. Experience. Exit? Re-use?

The Value Chain



[NLA Zero Carbon London Report](#)

Executive Summary

85%

of NLA member survey respondents believe that current policy and regulations are not compatible with zero carbon ambitions

The built environment sector should lead the transition to a zero carbon future but more have to be done to overcome the barriers

90%

of the work of built environment professionals should become retrofitting, if we are to address the climate emergency

91%

believe that COVID-19 presents an opportunity to transform our way of life and transition to a 100 per cent green economy

2030

London is showing leadership in its climate agenda, but the next London Mayor should commit to make London carbon neutral by 2030 to be a real world-leading city

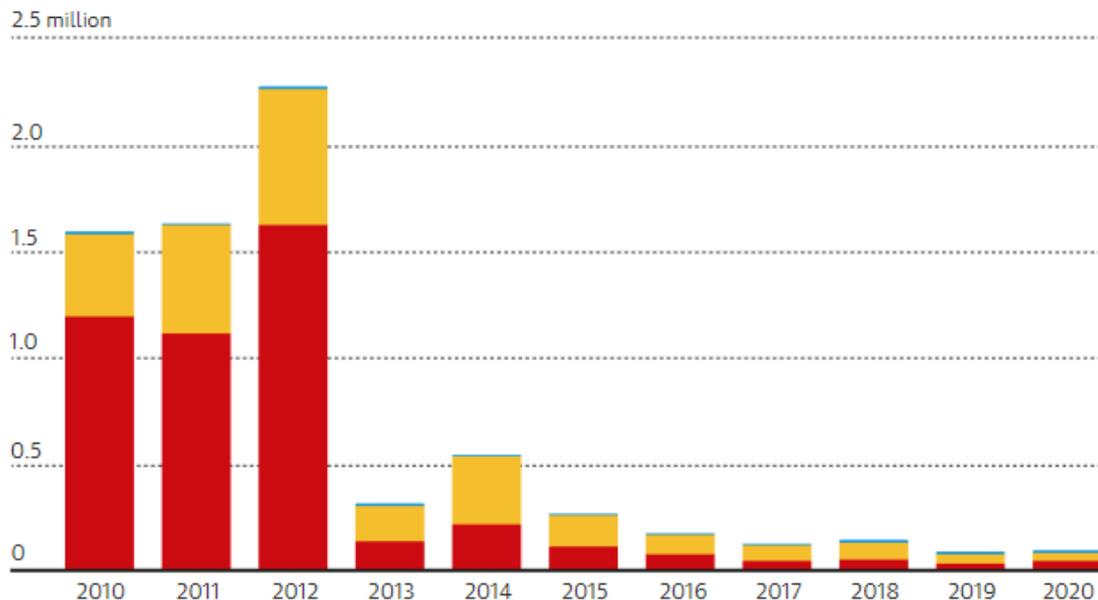
We need more government funding and a transformation of the financial system to support the green economy

[NLA Report – Confronting Climate Change](#)

UK home insulation improvements have plummeted since 2012

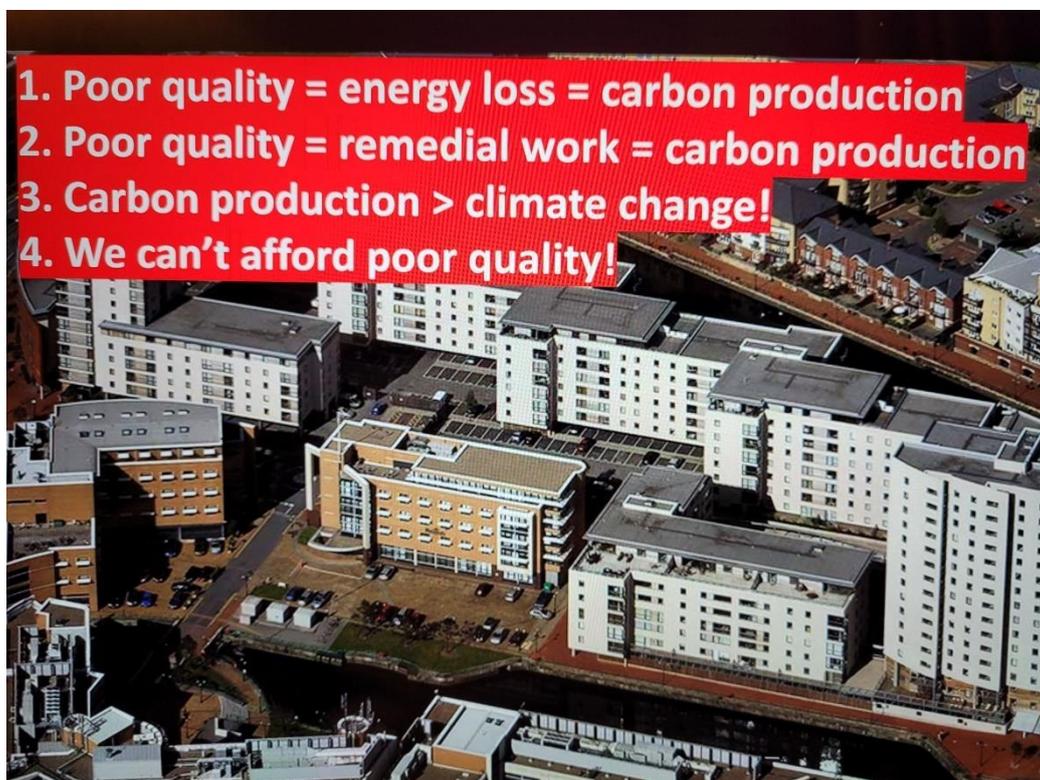
Number of UK homes getting these improvements

■ Lofts insulated ■ Cavity walls insulated ■ Solid walls insulated



Guardian graphic. Source: Climate Change Committee. Note: Progress in reducing emissions March 2021 report

Climate Change Committee via The Guardian Graphics Team



We can't 'afford' poor quality buildings which are not climate resilient

Whole Home Survey

Whole Home Survey – The Four "C"s

- The survey incorporates the principles of the 4 C's to retrofit risk assessment and management.
 - Context (condition, location, occupancy, ventilation, significance) to eliminate any measures the property is not "Retrofit Ready" for
 - Capacity (to ensure the building fabric is not over optimised and pushed to hard, resulting in failure).
 - Coherence (to ensure that all the contextual information is used to determine the correct specification and measures) It require a building suitable approach, not predetermined measures.
 - Caution (where there are any unknowns or uncertainties, then apply caution when setting the targets)



Optimised Retrofit

sero

Source: Sero presentation 2021

The screenshot shows a presentation slide with the following content:

- Department for Levelling Up, Housing & Communities
- Background
- Andre...
- On 15th of December 2021, DLUHC published new standards for
 - Ventilation (Approved Document F)
 - Energy Efficiency (AD L)
 - Overheating (AD O)
 - Infrastructure for Charging Electric Vehicles (AD S)
- These standards and the legislation behind them come into force on the 15th of June 2022.
- The changes made in energy efficiency are an interim step ahead of the full Future Homes and Buildings Standards which come into force from 2025.

Extract from PEPA conference 2022

The current cost of living crisis is having a significant impact on UK households



49%

are concerned about keeping up with mortgage or rent payments over the next 12-months



13%

of households will not be able to cope should we see the expect rise in energy bills later this year

This rises to...

28%

among those with less than £20,000 in household income



44%

of households are not confident about being able to maintain their current lifestyle over the next 12-months

This rises to...

51%

in Yorkshire & Humber, the South-West of England and Northern Ireland

The Cost of Living Crisis



Royal Town Planning Institute
@RTPIPlanners

Where you live matters - Poor-quality housing increases your risk of severe ill health by 25%.

A well-planned neighbourhood can support up to 59% of NHS-recommended weekly activity without that expensive gym membership. [#PlanningYourWorld](#)
[#BuiltEnvironment](#) [#Housing](#)



Source: RTPI

Addressing Housing Emissions

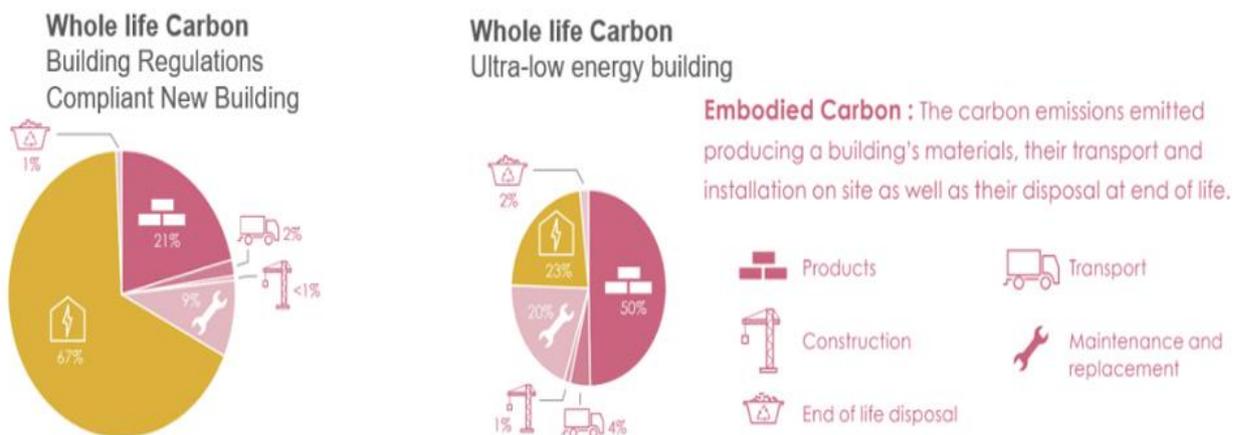
National Housing Federation Discussion paper (July 2021):

- According to Climate Change Committee (CCC), in 2019 the direct burning of fossil fuels to heat space and water in homes accounted for 13% of the UK's total carbon emissions
- The CCC is clear that for the UK to meet net zero by 2050, there must be a complete elimination of these emissions from housing
- Housing providers have a significant role to play in helping reach the UK target
- The '1.5 degrees world' is already locked in - preparing homes for the impacts of this warming should also form part of any holistic net zero strategy
- The road to net zero outlined by the CCC is focused on retrofitting all housing first, with the vast majority of fabric energy efficiency improvements being completed by 2035 (and all social homes reaching EPC C by 2028)

Source: National Housing Federation

Source: National Housing Federation

Impact of industry – Housing



- Homes built today will be around for 100 years
- Build now to avoid the need for future retrofit – avoid future costs and disruption

Source: LETI (2020)

Source: LETI 2020



“ The UK has some 28 million homes, the vast majority of which need retrofit work ”

[National Retrofit Strategy V2 launches » Construction Leadership Council](#)

by 2050, household emissions need to be addressed. Water use in the home accounts for almost ten-times more greenhouse gas emissions than the entire operations of the UK water industry. Heating water accounts for 17% of home energy use. The UK has some 28 million homes, the vast majority of which need improving by having retrofit work carried out. A national retrofit strategy will also improve the UK's energy security as well as resilience of water suppliers.

Retrofit should be carried out alongside all other improvements, like loft conversions or new kitchens. When typical home improvement works are undertaken, these represent opportunities to trigger measures to help us along the path to net zero.



“ Our homes use 35% of all the energy in the UK and emit 20% of the carbon dioxide emissions ”

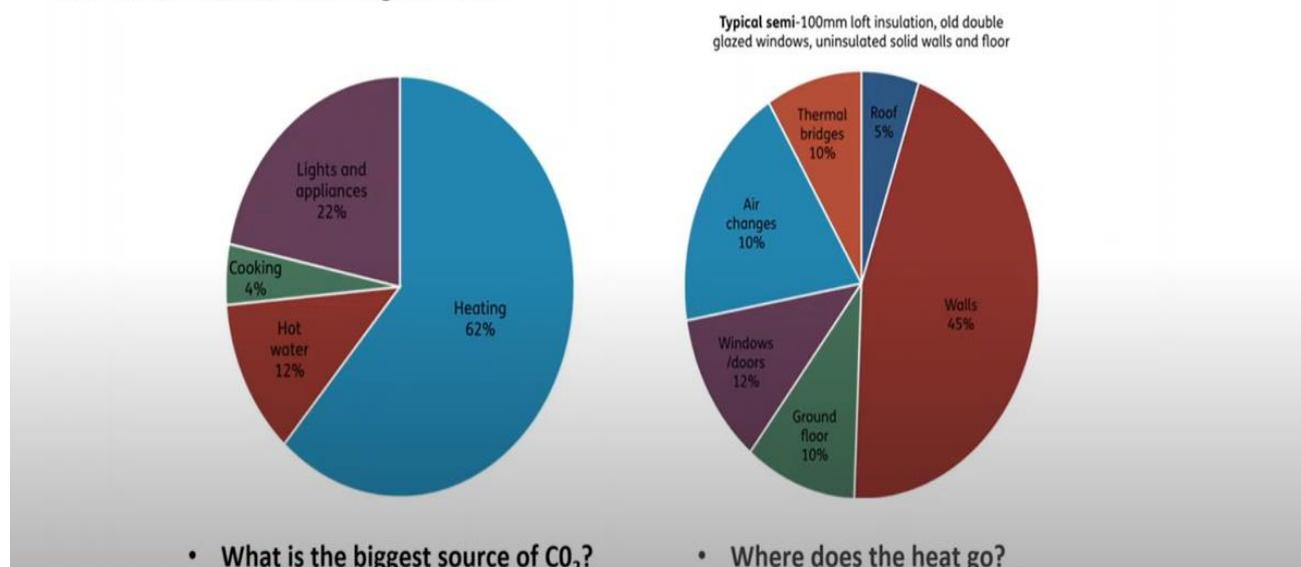
3 | [The national retrofit strategy](#)

[Extract - CLC National Retrofit Strategy](#)

Introduction

What is the real performance of an average home?

How do we measure heating demand?



Real Energy Performance of an average house

Fabric First

What is 'Fabric' and why should this be tackled first?:

- The Fabric is the external envelope of the building and its performance will determine the overall heat loss of the home in 2 ways:
 1. Through the main building elements: Walls, Roof, Floor, Windows AND the junctions where these meet – the 'Thermal Bridges'.
 2. By excessive ventilation (draughts) through gaps and cracks in the envelope.



Fabric First

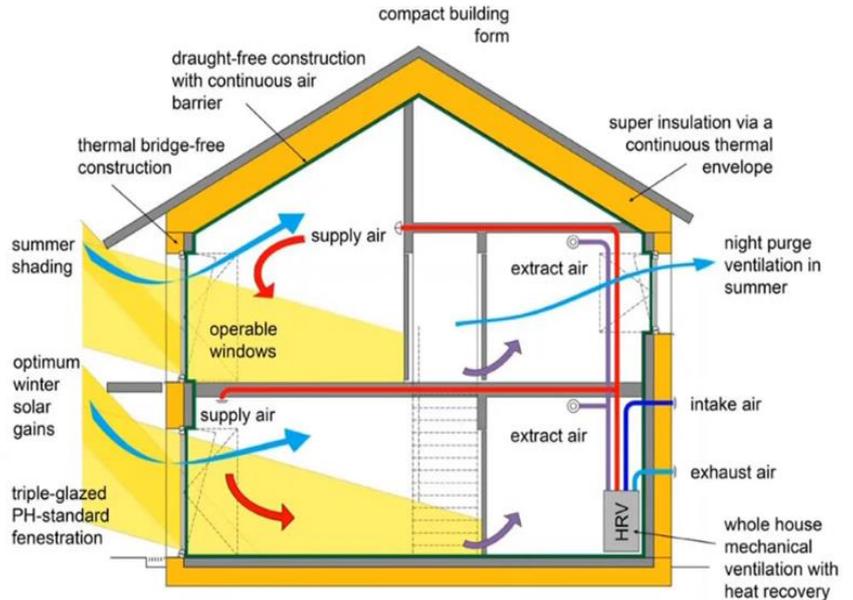
Fabric First to mitigate heat loss

Fabric First



This means:

1. Continuity of insulation
2. No thermal bridges
3. Good quality components
4. Adequate ventilation
5. Good airtightness



Fabric First – What it means?

Challenges



Many regional authorities in our area have accelerated Net Zero ambitions which would require network investment ahead of our baseline plan.

In order to unlock this investment we require a high bar of evidence. We are creating a framework to assist regional authorities in developing high quality Local Area Energy Plans to provide this evidence.

Evidence Requirements

Ambition	Scope	Quality	Stakeholder	Governance	Funding
• Does the plan decarbonise ahead of the 2050 national target?	• Does the plan consider multiple sectors and technologies?	• Is the plan informed by spatial mapping, CBA, and scenario analysis?	• Was the plan developed with local stakeholders?	• Is there a delivery plan with project owners?	• Has funding been secured?

In our engagement with local authorities, we have found that spatial mapping and funding are the two largest challenges.



Extract from presentation on Energy – note reference to Local Area Energy Plans

PAS 2035 Roles

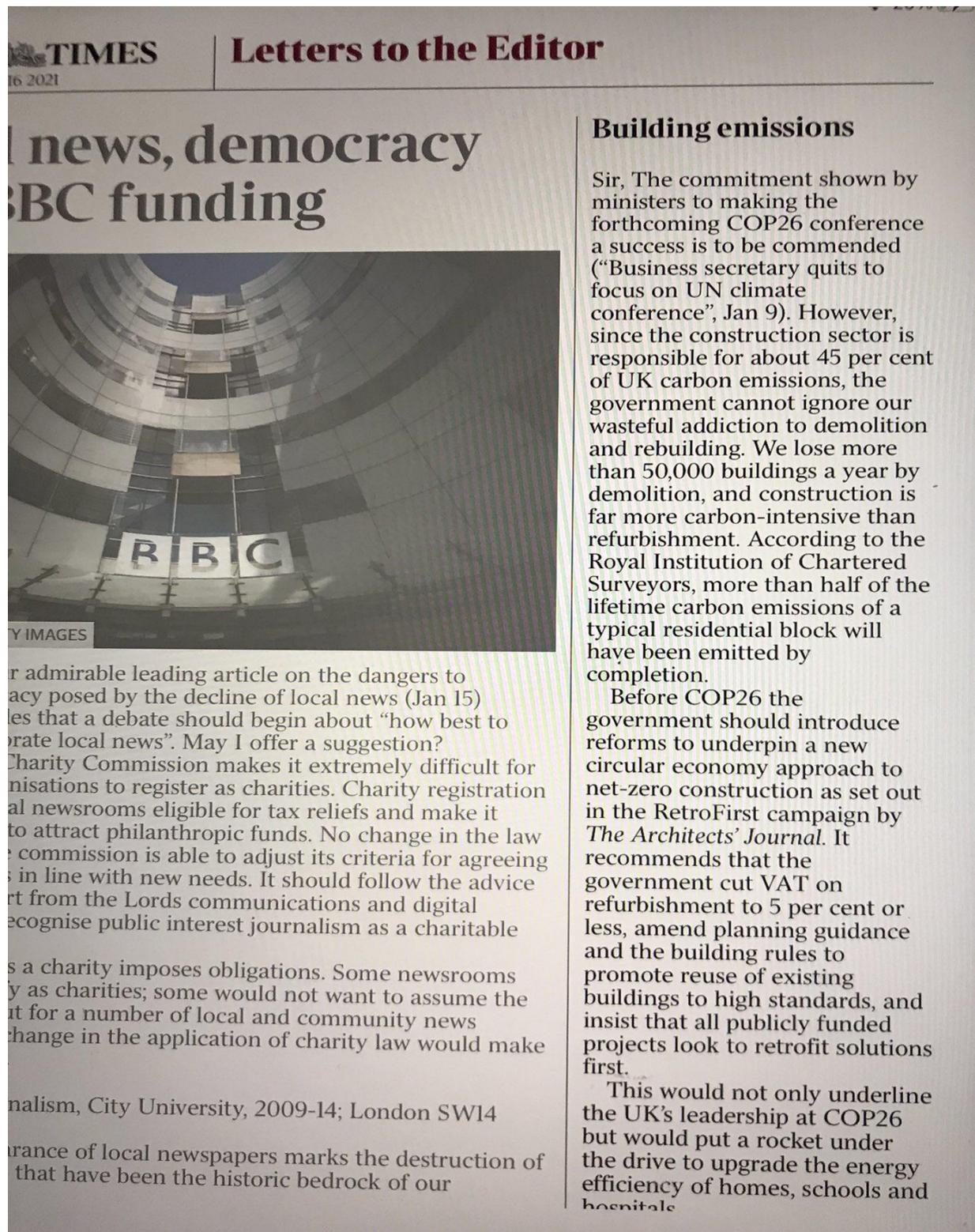


[PAS2035 Roles](#): nb since April 2022, the Retrofit Advisor role no longer exists

PAS2035 is about regulating the process - the project management process - in 6 steps:

1. Outcomes: comfort, energy, carbon;
2. Whole house assessment - clear focus on ventilation / fabric / services;
3. Risk assessment: conflicts between different measures;
4. Design and coordination;
5. Installation; and
6. Monitoring and evaluation.

**APPENDIX 3: (i) Times article referencing demolition and the circular economy
+ (ii) Estates Gazette article in which the Chair of the Climate Change Committee – when
referring to the housing industry states: “This is an industry that hasn’t stepped up to the
mark”.**



Letter to The Times – Building Emissions



“This is an industry that hasn’t stepped up to the mark. Government has got to impose the new standard, it’s got to be tough and it’s got to be immediate”

GEORGE MOORE/SHUTTERSTOCK

Julia Cahill

Lord Deben, the former environment minister John Gummer, who served under John Major, has history with the UK housebuilding industry and he has no intention of letting it off the hook now.

Here, the 81-year-old chair of the Climate Change Committee, which advises government on tackling global warming, outlines how housebuilding and planning need to fundamentally change if the UK is going to achieve its net zero carbon goals.

“The fact that we are still building homes which we are going to have to retrofit is, for me, the biggest scandal,” he says.

Deben claims that the six-year window of delays caused by government going back on its commitment to zero carbon homes by 2016, failure to produce a Future Homes Standard and housebuilders’ constant lobbying of government to give them more time to make the switch from fossil fuels for heating new homes, has added a million problems to the climate challenge.

He says that over that period around one million homes have been handed over to consumers from housebuilders. One million homes that are dependent on fossil fuels and are lacking the fabrication standards necessary to meet zero-carbon requirements. One million homes that will all need to be retrofitted at a not insignificant cost to the homeowner.

Faster implementation

What the committee wants to see now, says Deben, is government produce

its Future Homes Standard, which will require homes to produce 75-80% fewer carbon emissions and eventually become net zero carbon, as a matter of urgency (consultation took place in 2019, with full technical specifications to be consulted on in 2023). Implementation must be brought forward from 2025 to 2024, he argues.

Consultation on the standard also suggested that electric heat pumps should become the preferred mass-market solution, largely in response to the CCC’s recommendation that new homes should not be connected to the gas grid from 2025.

“The housebuilders will say that they can’t do this,” says Deben. “I had to deal with them for years as secretary of state. They always say this, and I’m afraid it isn’t true because other countries manage to achieve this. The level we are asking for is actually not far out of line with what has been built in Germany and Scandinavia for a very long time.”

He adds: “This is an industry that hasn’t stepped up to the mark. Government has got to impose [the new standard] and it’s got to be tough and it’s got to be immediate.”

Planning for change

Planning too, says Deben, needs to be heavily interwoven into the environmental agenda, echoing widespread calls from the property sector for government to ensure that the new Planning Bill directly aligns with its obligations under the Climate Change Act.

“One of the problems is that the planning system at the moment does

not include the necessary elements to reach net zero,” says Deben. The CCC is calling for a “net zero test” to ensure that all government policy, including planning decisions, is compatible with UK climate targets.

Empowering local leadership to deliver on their own regions’ climate goals will also be essential if the UK is to achieve net carbon zero by 2050, says Deben, and he wants to see real evidence of government understanding that dealing with net zero has to be done at a local level.

Devolution for the planet

“You can’t do it all centrally,” he says. “The Planning Act has to make it possible for local authorities to make decisions locally about how they do it, how they meet local requirements.”

“We need to have much more devolution and much more partnership between government and local government. This thing can only be done if there is that partnership and we are pressing very hard for that.”

“The thing the development industry has to understand is that almost every local authority has declared a climate emergency,” says Deben. “They have mainly committed themselves to become net zero by 2030 for the local authority and then they have dates for the locality. They are going to have to reach those in one way or another and the Planning Bill is going to have to give greater powers to local authorities to be able to make these decisions and choices.”

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