UKGBC Response to Net Zero Review: Call for evidence

October 2022

The UK Green Building Council (UKGBC) is an industry network with a mission to radically improve the sustainability of the built environment, by transforming the way it is planned, designed, constructed, maintained and operated. As a charity with over 700 member organisations spanning the entire sector, our members are at the forefront of driving sustainability in the built environment and associated sectors, including leading UK businesses.

From our engagement with our members, and the unprecedented momentum we continue to see across the industry and associated sectors, it is resoundingly clear that the net zero transition, and greater action on sustainability, represent the most significant economic opportunities for our sector to deliver growth, new investment, and jobs, whilst also delivering on our legal environmental commitments.

Our membership firmly supports greater government action to accelerate the UK's net zero transition. The Government has an indisputable mandate to accelerate progress towards net zero and must fully devote its efforts to supporting the transition through all the levers at its disposal.

UKGBC has developed a Whole Life Carbon Roadmap outlining the most efficient pathway to reach a net zero the built environment. Crucially, the road map contains key policy recommendations and government interventions needed to support sector and fully unlock the associated opportunities.

We welcome the opportunity to respond to this call for evidence – and below are our responses to individual questions that fall within our organisational remit.

Overarching questions:

1. How does net zero enable us to meet our economic growth target of 2.5% a year?

There is wide agreement across the sector that action to reach a net zero built environment will generate, and is already generating, considerable economic growth benefits. For the built environment in particular, the benefits of reaching net zero include not only supporting direct business growth but will also bolster consumer purchasing power through energy efficiency savings, and thus the wider economy. Our response below outlines several key areas where progress towards net zero will generate substantial economic opportunities. These include: **retrofitting** our existing buildings; the growth, savings and jobs associated with setting ambitious **new build standards**; moves towards a more **circular economy**; **offsetting and nature based solutions**; and lastly, through **green finance and investment products.**

Retrofit

Retrofitting the nation's homes and buildings represents a significant, and widely recognised, economic opportunity for the sector. As outlined by the International Energy Agency, energy efficiency also has a key role to play as an effective economic stimulus.[1] It can both support existing workforces and create new jobs, delivering economic growth nationwide. Retrofitting homes will enable households to save money on their energy bills, meaning they will have more disposable income to spend in the local economy to drive consumer demand.

Energy efficiency projects can scale up rapidly following an initial capacity building phase as skills and supply chains develop and innovation drives down costs. There is an already significant skill overlap in delivering retrofit with current construction jobs, delivering considerable potential to boost the fortunes of a sector which has been hard-hit by the

[1] https://www.iea.org/articles/energy-efficiency-and-economic-stimulus

COVID crisis. The existing market for repair, maintenance and improvement (RMI), is already worth £25-30 billion per year, representing around one-third of construction sector output.[2]

Large scale energy efficiency policies have typically been shown to have positive GDP effects of between 0.25% to 1.1% per year, with job creation ranging from 8 to 27 job years per million euros invested.[3]

Currently, only around 30% of the UK's 29 million homes meet EPC Band C.[4] Current rates of renovation will need to increase by around 7 times if we are to meet the Government's target of upgrading as many homes to EPC Band C as possible by 2035. According to the Household Energy Efficiency Statistics 30% of properties with a cavity wall still do not have cavity wall insulation; 34% of properties with a loft do not have sufficient loft insulation; and a full 91% of properties with solid walls don't have solid wall insulation.[5]

Research undertaken by the Centre on Innovation and Energy Demand, Environmental Change Institute, the Regulatory Assistance Project, and E3G, shows that across homes in the UK there is cost-effective potential for around 20 million insulation measures to 2035, and 17 million in England, equivalent to around 20,000 insulation improvements being installed every week between now and 2035.[6] Installing all of these measures would equate to billions of pounds of energy savings and deliver a considerable pipeline of work for the sector.

Moving beyond band C, almost all of our 29 million homes will need some retrofitting if we are to meet our 2050 net zero target; about 1.8 per minute between now and 2050.[7] Even the most energy efficient homes will need to install heat pumps – or other low / zero carbon technologies - in due course, which might also involve replacing radiators, installing underfloor heating, upgrading the electrical supply etc.

A substantial body of reports and evidence clearly affirms the significant job creation potential of a national retrofit programme. The Energy Efficiency Infrastructure Group estimates that 40,000 jobs could be created in insulation alone over the next two years, and 150,000 by 2030.[8] It has also been estimated that a job in home insulation can be created for £59,000 - far less than the cost of a road maintenance job, which is estimated to be more than £250,000.[9]

Through our Net Zero Whole Life Carbon Roadmap, UKGBC has endorsed the Construction Leadership Council's (CLC) blueprint for a national retrofit strategy.[10] It estimates that upgrading the nation's housing stock would generate roughly 500,000 new jobs in the sector. A national strategy would unlock private investment from property owners and financial institutions combining to a 20-year programme of circa £525 billion, with £2 put back into the economy for every £1 invested.[11]

Modelling for the Energy Efficiency Infrastructure Group of a programme to provide whole house retrofit for 9 million homes has estimated this would provide 117,811 new direct jobs in year one, rising to a peak of 382,885, in year four. This would be an average of 294,527 new jobs between 2020-2023/24, a 22% increase in total construction employment and a 162% increase in the renovation, maintenance and improvement sector. This rises to an average of 515,157 when factoring in indirect jobs. These measures would increase economic activity, with annual GDP 1.58% higher in 2023/24, compared with the level of economic activity otherwise expected.[12]

With the UK currently facing a cost-of-living crisis, with high inflation largely driven by high wholesale gas price rises, the case for energy efficiency and the transition to low carbon heat has never been stronger. Figures estimate that the associated average energy bills savings for the average household would be £779, with average household disposable

[2] https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/05/Construction-Leadership-Council-National-Retrofit-Strategy-Version-2.pdf
[3] https://iea.blob.core.windows.net/assets/28f84ed8-4101-4e95-ae51-9536b6436f14/Multiple_Benefits_of_Energy_Efficiency-148x199.pdf
[4] https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1730/173005.htm
[5] https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics
[6] Rosenow et al, (2018) The remaining potential for energy savings in UK households, Energy Policy, Vol. 121, pp. 542–552.
[7] https://www.nationwidemediacentre.co.uk/future-of-society/fut
[8] https://www.theeeig.co.uk/media/1063/eeig_net-zero_1019.pdf
[9] https://www.theeeig.co.uk/media/1063/eeig_net-zero_1019.pdf
[10] https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/05/Construction-Leadership-Council-National-Retrofit-Strategy-Version-2.pdf
[11] https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/05/Construction-Leadership-Council-National-Retrofit-Strategy-Version-2.pdf
[12] https://www.theeeig.co.uk/media/1096/eeig_report_rebuilding_for_resilience_pages_01.pdf

incomes 2% higher reducing household energy expenditure by £7.5 billion per year at 2020 prices. For Lower income households, average bills would be 30-37% lower, with average savings of £4,464 for upgrading homes at EPC F and G to C.[13]

In addition, making our homes warmer and more comfortable will help ease pressure on the NHS. Living in a cold home markedly increases the incidence of respiratory disease, which in turn is a risk factor for more severe incidences of COVID. The economic cost to the NHS of poor housing, at a time of great pressure, is estimated at around £1.4bn.[14] BRE's findings indicate the cost to wider society [economy] of poor housing could equate to £18.5 billion per year.[15] Investing in home retrofit will play a vital role in easing this and investment to address associated risks would be repaid by savings to NHS in 8 years alone.[16]

Pressures are likewise acute for businesses. The UK's non-domestic building stock is relatively old, with 39% built before 1970, around the time when thermal regulations were widely introduced. Only 30% of non-residential buildings were constructed in the 21st century. We are seeing rising energy bills having a significant impact, particularly on SMEs. creating a significant drag on their economic growth and the wider economy. The building energy efficiency survey found that implementing measures with the payback of three years or less would save businesses on average £1.3 billion per year.[17]

New build

The strengthening of new building standards is not only critical in meeting our legally binding carbon targets, but integral to achieving lower energy running costs and to avoiding huge capital costs associated with balancing and over-expanding the UK's electricity grid over the coming years to heat inefficient new homes and buildings.

UK businesses are already investing heavily in building lower carbon homes and buildings, and that investment must not go to waste. Low carbon design and product solutions – including innovative new construction methods – offer a golden opportunity to create jobs and improve skills, enabling the UK to gain a competitive advantage and export cutting-edge products and services. Ambitious regulation and standards are also crucial in accelerating market momentum amongst value-chain stakeholders looking to fund and deliver new construction projects or retrofit existing buildings.

Ambitious zero carbon new build standards will generate significant energy bill savings for both households and businesses, from higher levels of energy efficiency and low carbon heat sources. If the zero carbon homes policy had been implemented as planned in 2016, people moving into new homes would be saving more than £200 a year on their energy bills. Families who moved into their homes at the start of 2016 will have been paying on average an extra £208 to £233 a year per year to heat their houses. Current new-build homes require more than twice the energy to heat than a zero carbon home would have done.

Initiatives such as Zero Energy Bill homes and Passivhaus have highlighted the potential for significant energy bills savings for residents, with Passivhaus standards lowering energy bills by 75% to 90% compared to the standard UK home.[18] Consumer demand continues to grow. Over the past 18 months the number of Passivhaus projects in the pipeline has soared. Membership of the Passivhaus Trust has also doubled, from around 250 members in August 2020 to 500 today, suggesting there are now twice as many companies providing specialist design and construction services.[19]

Ambitious regulation and standards are crucial in supporting market momentum value-chain stakeholders in funding new construction projects or in retrofitting existing buildings. The 2020 Real Estate Assessment Results from GRESB

[13] https://static1.squarespace.com/static/6322eb1857fe565e0c779721/t/6346bdd8667fe1589ecf53b3/1665580514037/CHEAPER_BILLS_WARMER_HOMES.2022.pdf
[14] https://bregroup.com/press-releases/bre-report-finds-poor-housing-is-costing-nhs-1-4bn-a-year/
[15] https://bregroup.com/press-releases/bre-report-finds-poor-housing-is-costing-nhs-1-4bn-a-year/
[16] https://bregroup.com/press-releases/bre-report-finds-poor-housing-is-costing-nhs-1-4bn-a-year/
[17] https://policyexchange.org.uk/wp-content/uploads/2017/09/Clean-Growth-1.pdf
[18] https://ilkehomes.co.uk/2022/02/uks-first-home-to-guarantee-zero-energy-bills-to-be-launched-in-essex-saving-residents-up-to-40000/ ; https://issuu.com/passivhaus_trust/docs/why_passivhaus_2013_final
[19] https://www.theguardian.com/money/2022/feb/19/passivhaus-how-to-insulate-your-home-against-soaring-heating-bills

have shown accelerating investor demands for ESG data, which has seen increased participation in the assessment by 22% since 2019 to cover 1,229 portfolios (2019: 1,005) worth more than USD $4.8 trillion AUM. The private sector led the growth trend, with participation growing 32%.[20]

Pressures and costs associated with expanding grid capacity can also be addressed and alleviated through combination of improving new build standards and energy efficiency measures. The National Grid's Future Energy Scenarios 2022 outline that energy efficiency is a no-regrets policy. Through a combination of improving new build standards, consumer awareness and energy efficiency initiatives, between 50 and 100 TWh could be saved by 2050, comparing all options with the falling-short scenario, substantially reducing the potential expenditure needed for expanding grid capacity.[21]

Sustainable investment

The UK cannot afford to lose out on the rapidly growing global appetite for low-carbon real estate investment.

At the time of writing, 128 countries, representing 90% of global GDP, have made a net-zero commitment and over 10,000 companies, organizations, or subnational governments have joined the UN Race to Zero, committing to halving emissions by 2030 and achieving net-zero carbon emissions by 2050, at the latest.[22]Over $1.2 trillion real estate assets under management are part of Race to Zero, meaning that these real estate asset management companies will need to bring their property portfolio to net zero carbon across all scopes of emissions that relate to whole life carbon.[23] Sustainable investing – the integration of environmental, social and governance (ESG) factors into analysis and decision making – has seen a remarkable rise over past years. Starting from modest levels 15 years ago, it is now estimated at over US$ 35 trillion a growth of 15% in two years, and in total equating to approximately 36% of all professionally managed assets globally.[24]

The outbreak of the Covid-19 virus did not stop the growth of ESG investing, which has seen a steady increase in inflows and better-than-average returns since the pandemic.[25] Research by BlackRock suggests 88% of sustainable indexes did better than their non-sustainable counterparts in the first 4 months of 2020.[26] The MSCI Global Green Building Index which includes developed and emerging market large, mid and small cap companies that derive 50% or more of their revenues from products and services in Green Building, has shown that green building is continually outperforming the rest of the market.[27] The 2020 Real Estate Assessment Results from GRESB have shown accelerating investor demands for ESG data, which has seen increased participation in the assessment by 22% since 2019 to cover 1,229 portfolios (2019: 1,005) worth more than USD $4.8 trillion AUM. The private sector led the growth trend, with participation growing 32%.[28]

The magnitude of real estate investors or asset managers making net-zero statements is significant, such as the Net Zero Asset Owner Alliance's US$10.6trn (€4.77trn) commitment to transition investment portfolios to net-zero GHG emissions by 2050, two-thirds of that AUM – US$ 7.1 trillion – is now held by members who have set intermediate net-zero targets, aligned with the Target-Setting Protocol.[29] The Better Building Partnership (BBP) Climate Commitment included 35 signatories, representing over £275bn of assets under management encompasses more than 11,000 properties.[30] The Glasgow Financial Alliance for Net Zero is the world's largest coalition of financial institutions committed to transitioning the global economy to net-zero greenhouse gas emissions. More than 500 GFANZ members, representing around 40% of global private financial assets, have committed to the goal of net zero by 2050 totalling over $130 trillion of assets.[31] Likewise the UN-convened Net-Zero Insurance Alliance (NZIA) is a group of over 29 leading

[20] https://www.gresb.com/nl-en/2020-real-estate-assessment-results/
[21] https://www.nationalgrideso.com/document/263951/download
[22] https://assets.bbhub.io/company/sites/63/2022/06/GFANZ_Recommendations-and-Guidance-on-Net-zero-Transition-Plans-for-the-Financial-Sector_June2022.pdf
[23] https://climatechampions.unfccc.int/race-to-zero-hits-breakthrough-targets-in-the-built-environment/
[24] http://www.gsi-alliance.org/
[25] https://www.wsj.com/articles/esg-investing-shines-in-market-turmoil-with-help-from-big-tech-11589275801
[26] https://www.blackrock.com/corporate/about-us/sustainability-resilience-research
[27] https://www.msci.com/documents/10199/2befec3a-e178-460d-a5b1-e79555dee387
[28] https://www.gresb.com/nl-en/2020-real-estate-assessment-results/
[29] https://www.unepfi.org/industries/the-second-progress-report-of-the-net-zero-asset-owner-alliance-advancing-delivery-on-decarbonisation-targets/
[30] https://www.betterbuildingspartnership.co.uk/capital-regional-signs-bbp%E2%80%99s-ground-breaking-climate-commitment-35th-signatory
[31] https://www.gfanzero.com/ ; https://assets.bbhub.io/company/sites/63/2022/05/Financing-the-Net-Zero-Revolution_NZDS-Speech-by-Mark-Carney.pdf

insurers represents more than 14% of world premium volume globally, and UN-convened Net-Zero Banking Alliance currently represents about 40% of global banking assets, which are committed to aligning their lending and investment portfolios with net-zero emissions by 2050.[32] For the UK property sector in particular, momentum is substantial. An industry survey earlier in in the year found 90% of the 70+ of key clients spoken to had set net zero carbon targets or planned to in the next two years.

Finally, evidence of the uptake of recommendations from the Task Force on Climate Related Disclosures originally released in 2017 provides incontrovertible proof that investors and financiers are looking to de-risk their portfolios against climate risks. This means ensuring that they are both resilient and capable of adapting to extreme weather events as well as ensuring that they have adequate plans to transition to net zero carbon assets ahead of 2050. From the latest TCFD Status report, the average number of recommended disclosures addressed per company has increased over the past five years, from 1.4 in 2017 to 4.2 in 2021, an Average Annual Growth Rate of 32%.[33] Of those surveyed, 95% of asset managers were implementing TCFD recommendations, with 62% currently reporting TCFD aligned information to clients, and 37% planning to. For asset owners, 93% surveyed were implementing TCFD recommendations and 77% reporting to beneficiaries, 20% planning to.[34]

All such trends and statistical evidence pointing to the growing global and local momentum behind the transition to net zero carbon assets highlight the very tangible downside risks of the UK failing to match the pace of decarbonisation required. Increased rates of obsolescence and falling capital and rental values can be expected for those real estate assets that do not meet net zero carbon standards in time, and capital allocations in favour of those markets that do meet such standards could see the UK's real estate values fall rather dramatically in the years ahead if we fail to meet the pace of change required.

On the flip side, evidence that assets that do meet higher standards of energy efficiency, net zero carbon and other sustainability features generate higher returns (across capital values, yields and rental values) is building.[35]

Circular economy

The transition to a circular economy will enable built assets, products and materials to be kept in use for longer, contributing to mitigation and adaptation efforts in the UK, and across the global supply chain. Research suggests that the growth of circular economy sectors such as repair, reuse and refill could create between 54,000 to 102,000 net jobs across all regions in the UK by 2030.[36] A significant proportion of electrical products (over 80%) consumed in the UK are imported. Shifting towards more circular economy activities has the potential to decrease demand for imported goods and increase jobs locally, especially through repairs.[37] Over the next 10 years it is estimated the circular economy market could boost economic growth by up to 4%[38]Adopting a circular economy is estimated to represent a €1.8 trillion opportunity for the EU by 2030.[39]

Offsetting and nature

UKGBC members emphasise the rising value of nature-based solutions and investment to their businesses.

Research indicates that Nature Based Solutions (NBS) can provide over one-third of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to below 2 °C, achieving nature's mitigation potential of 10-12 gigatons of CO2 per year.[40]

[32] https://www.unepfi.org/net-zero-banking/; https://www.unepfi.org/net-zero-insurance/
[33] https://assets.bbhub.io/company/sites/60/2022/10/2022-TCFD-Status-Report.pdf
[34] https://assets.bbhub.io/company/sites/60/2022/10/2022-TCFD-Status-Report.pdf
[35] https://www.jll.co.uk/en/trends-and-insights/research/the-impact-of-sustainability-on-value-infographic ; https://www.savills.co.uk/blog/article/298067/commercial-property/how-sustainability-is-influencing-the-value-of-real-estate.aspx
[36] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003570/gjtf-report.pdf
[37] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003570/gjtf-report.pdf
[38] https://www.ing.nl/media/ING_EZB_Financing-the-Circular-Economy_tcm162-84762.pdf
[39] https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Sustainability/Our%20Insights/Europes%20circular%20economy%20opportunity/Europes%20circulareconomy%20opportunity.ashx
[40] https://d306pr3pise04h.cloudfront.net/docs/publications%2FNature-Based-Solutions-for-Climate-Manifesto.pdf

The global and domestic market for nature-based climate solutions, particularly in relation to carbon offsetting, represents a significant potential area of growth and investment potential. Offsetting will be a part of the net zero transition in the built environment to address unavoidable emissions and ensure it is cost effective, as outlined in UKGBC's Net Zero Carbon Buildings Framework Definition.[41] In addition, nature-based solutions and offsetting also present an opportunity, beyond emission reductions, to develop a broader value proposition that is aligned to long-term business strategies, wider environmental legislation, and would support both the UK and global transition to net zero.

Private-sector commitment to action is gaining momentum, with many companies setting the goal of reaching net-zero emissions and making commitments on nature. Net-zero commitments by companies have more than doubled in recent years and the scale of nature offset pledges within these commitments is rising accordingly.[42] Based on net-zero commitments today from more than 700 of the world's largest companies, there have already been commitments of around 0.2Gt CO2 of carbon credits by 2030.[43] As a result, nature-based carbon solutions are gaining attention and carbon markets are growing fast. Corporate strategies that aim to use nature to help deliver a net-zero pathway are becoming mainstream.[44]

Compliance Carbon Offset Markets, the more mature and larger of the two carbon offsets markets used to meet legal obligations, had a market size in 2020 of $261 billion.[45] The value for the 2021 voluntary carbon credit market breached $1billion in November 2021. Xpansiv CBL reported that total carbon-offset volume transacted on Xpansiv exchange CBL exceeded 121.5M mtCO2e (tons) in 2021, up 288% from 2020 levels.[46] Demand growth for carbon credits in 2021 was driven by the growing interest of the public, businesses, shareholders and investors in Environmental, Social and Governance (ESG) performance, and specifically the push for large companies to set net zero goals and significant rise in sustainability reporting.[47] In 2010, nature-based carbon credits accounted for 5% of carbon credits, and now account for around 40%.[48] Analysis suggests the voluntary carbon market will be worth an estimated US$50 billion in annual revenues by 2030, and NBS are projected to generate US$800 billion by 2050.[49]

The UK is well placed to capitalise on this market for nature-based climate solutions, driven and delivered in part by business appetite in relation to the built environment. The England Peat Action Plan alone is likely to create around 600 jobs largely in the North of England, contributing to the wider levelling-up agenda.[50]

Nature based solutions are increasingly well positioned as both a desirable and valuable asset and/or investment. Global level analysis indicates that directing less than 5% of the total post COVID economic stimulus to date (US$552 billion) into nature-based solutions would outperform a business-as-usual (BAU) stimulus investment scenario globally, by delivering[51]:

- **More jobs and higher incomes**: An NBS-focused stimulus creates about 7% more jobs globally than the BAU scenario and stimulates 8% more short-term domestic economic activity. NBS interventions are more labour-intensive than typical stimulus interventions and more effectively target segments of the labour market hardest hit by the pandemic, so they are more effective at creating new job opportunities for displaced workers. They also rely on fewer imported inputs and so are less prone to 'leakage' than the BAU scenario, where efforts to increase domestic demand dissipate around the global economy.
- **Natural capital interventions have high social returns**. Natural capital has undergone historic destruction in the past century, contributing to climate change, fires, air pollution, and other environmental disasters around the world. Historic destruction means that there are substantial social returns to replacing it,

[41] https://www.ukgbc.org/ukgbc-work/net-zero-carbon-buildings-a-framework-definition/
[42] https://www.wwf.org.uk/sites/default/files/2021-10/Net_zero_scorecard_report_0.pdf
[43] https://www.mckinsey.com/~/media/mckinsey/business%20functions/sustainability/our%20insights/why%20investing%20in%20nature%20is%20key%20to%20climate%20mitigation/nature-and-net-zero-vf.pdf
[44] https://www3.weforum.org/docs/WEF_Consultation_Nature_and_Net_Zero_2021.pdf
[45] https://carlossanchez.eco/blog/carbon-offset-markets/
[46] https://fs.hubspotusercontent00.net/hubfs/7608351/2022%20Carbon%20Credit%20Crunch%20Report%20.pdf
[47] https://assets.kpmg/content/dam/kpmg/xx/pdf/2020/11/the-time-has-come.pdf
[48] https://www3.weforum.org/docs/WEF_Consultation_Nature_and_Net_Zero_2021.pdf
[49] https://www.mckinsey.com/capabilities/sustainability/our-insights/a-blueprint-for-scaling-voluntary-carbon-markets-to-meet-the-climate-challenge ; https://www.blackfordinsurance.com/media/4z3bnpao/investor-guide-to-nets-and-land-use-vivid-economics-2020.pdf
[50] https://www.gov.uk/government/publications/nature-for-people-climate-and-wildlife/nature-for-people-climate-and-wildlife
[51] https://www.vivideconomics.com/wp-content/uploads/2020/01/210119-Greening-the-stimulus_clean.pdf

regardless of whether it is in the context of stimulus or not. NBS investments are compelling from a social welfare perspective, and their stimulus benefits only strengthen their investment rationale

- **Accelerated decarbonisation**: The modelled portfolio sequesters 2.2 billion tonnes per year of carbon dioxide equivalent over 20 years, reducing global net annual greenhouse gas emissions by 4%.
- **Protection of nature & meeting nature targets**: Many of the NBS interventions focus on habitat protection and restoration, including forests, wetlands and peatlands, covering millions of hectares of degraded ecosystems globally. Restoring this land would contribute substantially to stemming biodiversity losses, and recovery of important ecosystem services such as air and water quality improvements.
- **Improved climate resilience**: NBS improve resilience to floods and droughts. Indicative analysis, accounting for projected increases in risks without further investment, suggest that NBS interventions would reduce the financial impact of floods by US$23 billion annually, which represents 57% of the US$46 billion in worldwide economic losses caused by floods in 2019.

2. What challenges and obstacles have you identified to decarbonisation?

Stop start government policy

Cycles of 'stop-start' government policy have inhibited decarbonisation in the built environment and associated business growth. The industry requires long term certainty and signals to support decarbonisation and green investment at scale. Disruption associated with policy cancellation, delay and/or reduced ambition has held back the economic and investment prospects for the sector, particularly in relation to retrofit and energy efficiency and higher standard new buildings.

It is crucial for delivering associated economic growth that the pitfalls of previous stop-start policies and funding initiatives are avoided. The cancellation of schemes such as the Green Homes Grant and Green Deal have generated "boom and bust" cycles in the (often SME) construction sector.

The government must lay firm foundations for a continuing programme of energy efficiency activity across the owner-occupier sector, which is self-sustaining. This should include the introduction of a revenue-neutral energy saving stamp duty incentive, which could play a key role in driving consumer demand and starting to build a value for energy efficient properties in the home-buying market. This market nudge would catalyse significant growth – an owner occupier low energy retrofit market of circa £17b per annum and 300,000 new jobs covering every part of the UK. UKGBC has worked with the Energy Efficiency Infrastructure Group to develop up a policy proposal and model for how this could work.[52]

A lack of clear, ambitious trajectory in regulation has inhibited the development of key low carbon products at scale, and associated investment. We have long been recommending that the Government act swiftly to publish a forward trajectory for future Part L uplifts, which would allow local authorities to set higher energy performance standards in line with future national requirements. This could fulfil a similar function to the old Code for Sustainable Homes, which clearly set out the future direction of national policy. It would also mean that investment and skills would be directly related to future uplifts in national regulations.

Lack of capacity amongst local authorities

After the 2016 Zero Carbon Homes policy was scrapped, a number of local authorities stepped up and used their powers under the Planning & Energy Act 2008 to set higher energy standards than those required by Part L. We have no doubt that this in turn has helped demonstrate to Government the viability of mandating higher standards. It is also worth noting that, had local authorities not felt such uncertainty about the status and extent of their powers (in the wake of the March 2015 Written Ministerial Statement and the planned amendments to the Planning & Energy Act), the number of councils specifying energy performance standards beyond Part L would almost certainly have been considerably higher.

[52] https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2022/10/27155048/EEIG-UKGBC-Energy-Saving-Stamp-Duty-Incentive-Brief-261022.pdf

However, uncertainty around the legislative context (discussed in our new homes playbook) and contradictory judgements (see planning) have both held back local authorities from developing or implementing more ambitious polices.[53]

More recently, a majority (approximately 75%) of UK local authorities have responded to the climate crisis by declaring climate emergencies – and they need to have the ability to match this leadership with appropriate policies in their local plans.[54] By setting higher standards, local authorities are able to drive innovation and the development of skills and supply chain solutions, which in turn helps bring costs down and faster progress towards meeting our climate targets. UKGBC has explored feasible options, standards and requirements through its New Homes Playbook.[55] Some local authorities have already pledged to require net zero carbon in operation for new buildings, for example Greater Manchester in 2028. Removing their power to do so would stifle innovation and fly in the face of our wider climate commitments.

At the same time, we do understand developers' concerns about the possibility of a patchwork of differing standards across the country. At UKGBC we have therefore felt it important to encourage local authority ambition whilst ensuring consistency around the scale of that ambition where possible. That is why, as above, recommending the Government work with the industry to publish a forward trajectory for future Part L uplifts, which would allow local authorities to set higher energy performance standards in line with future national requirements.

A lack of capacity at local authority is a significant barrier to the burgeoning net zero built environment industry both in planning departments and retrofit officers. Some smaller local authorities have less than one full time equivalent post working on retrofit. On planning, underfunding of local authorities has led to problems in recruiting and retaining planning staff are leading to decision-making delays and a council's planning service reaching "crisis point", including taking up to eight weeks to validate new applications.[56]

Planning

The planning system continues to be a major barrier to successful efforts to decarbonize the built environment and deliver green investment. In particular, the planning system in England has not been updated to duly take into account the UK's more ambitious net zero goals.

Currently, the planning system provides an inconsistent approach to net zero and development which is holding back green investment and the economic potential associated with more sustainable development. In some cases, carbon and environmental concerns, including compatibility with national legislation, have been cited as reasons to reject development.[57] However, the approach for this is not consistent across the country, and there is no clear underpinning methodology and guidance for handling carbon in either the development or local planning process. Of the 24 local authority local plans adopted outside Greater London since 2019 only one – the Plymouth and South-West Devon Joint Plan – sets out a quantified strategy to reduce its area's carbon output. Crucially, in the other 23 plans, Planning Inspector did not intervene to require a carbon target. CSE's review of local plans 2020 found only two plans were carbon audited and set out carbon budgets. Fewer than half of the others mentioned carbon emissions at all.[58] In other cases, unsustainable development continues to be approved, whilst elsewhere, ambitious sustainability development and/or policies have been rejected, notably by the Planning Inspectorate.[59] This lack of consistency and clarity is contributing to a lack of certainty in the industry, which is holding back the economic growth and investment potential associated with green development.

The planning system can likewise be a significant barrier to sustainable development in terms of constraints on specific technologies and interventions. Members have highlighted issues at the project level with regards to the use of certain

[53] https://www.ukgbc.org/ukgbc-work/new-homes-policy-playbook/
[54] https://www.edie.net/majority-of-local-authorities-have-declared-climate-emergencies/ ; https://www.local.gov.uk/about/campaigns/build-back-local/local-path-net-zero
[55] https://www.ukgbc.org/ukgbc-work/new-homes-policy-playbook/
[56] https://www.architectsjournal.co.uk/news/planning-aj-survey-shows-a-system-in-crisis
[57] https://www.architectsjournal.co.uk/news/tulip-rejected-over-embodied-carbon-and-heritage-concerns ; https://au.sports.yahoo.com/government-set-block-oxford-street-153417571.html
[58] https://www.cse.org.uk/news/view/2484
[59] https://www.transportfornewhomes.org.uk/the-project/garden-villages-and-garden-towns/ ; https://www.theguardian.com/politics/2020/mar/12/policy-of-building-homes-on-flood-plains-to-be-reviewed ; https://www.cpreoxon.org.uk/news/salt-cross-net-zero-ambition-crushed/

technologies and materials, such as heat pumps, solar PV, shutters, and low carbon materials, due to character concerns and inconsistent judgements brought about by a lack of clear policy and consistent guidance.[60]

Crucially, resourcing and skills constraints in local planning authorities are holding back green development. Local Authority net expenditure on planning has fallen by 43%, from £844m in 2009/10 to £480m in 2020/21. This amounts to just 0.45% of local government budgets allocated to planning services. Public spending on planning fallen the most – by 62% - in the North East of England. But other regions have faced similar declines: Yorkshire and The Humber (49%), London (48%), West Midlands (47%) and North West (46%). Indeed, less than half (49%) of planning applications were decided within statutory time limits in 2021.[61]

3. What opportunities are there for new/amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business?

There are significant opportunities for the Government to stimulate and facilitate the transition to a net zero built environment in a way that is pro-growth and pro-business. UKGBC's Whole Life Carbon Roadmap, developed in partnership with key organisations, businesses, and representative bodies across the industry, outlines the key policy proposals and initiatives required to deliver the built environment's contribution to UK's net zero target in a way that is both cost effective, and which maximises the opportunities for businesses, consumers and the economy. The following section includes the key policy recommendations and enablers highlighted and developed through the roadmap process, alongside wider recommendations from UKGBC's policy research and engagement.

Retrofit:

There can therefore be no further delay in embarking on a national programme of home retrofit, transforming UK housing to make it efficient, warm, and cheaper to heat, whilst transitioning away from fossil fuel heating. It is critical that Government therefore introduce and support a large-scale, transformative domestic retrofit strategy and programme that is fully coordinated with local authorities, industry, consumers and other relevant stakeholders, and does not disadvantage lower-income households.

The Construction Leadership Council (CLC) National Retrofit Strategy (NRS) sets out a pathway for how this can be achieved, with initial focus on capacity building, supply chain readiness, skills and training, building toward an accelerated deployment of fabric energy efficiency improvements and heat pump installations from the late 2020s to the mid-2030s. The strategy plans for 97% of UK homes to undergo energy efficiency retrofit by 2040.

To stimulate and facilitate **domestic retrofit** at scale, the government should:

- Establish a Central Retrofit Agency – to coordinate policymakers, local authorities, housing associations, community groups, local advocates, green finance and funding experts, industry bodies and regulators, private sector partners, and existing and future retrofit customers – to fund projects, track progress, share learnings, promote innovation, and broker partnerships.
- Develop a comprehensive engagement plan to ensure all households are aware of the funding and the benefits of taking action early.
- Set a clear trajectory and regulatory framework to introduce mandatory minimum EPC rating of C (or equivalent under updated EPC methodology), for owner-occupied homes at the point of sale (with suitable caveats e.g. historic building considerations) by 2028.
- Set a clear trajectory for improving the Minimum Energy Efficiency Standard (MEES) for the domestic rented sector to at least EPC C (or equivalent under updated EPC methodology) by 2028.
- Introduce and clearly signpost a cut-off date of 2030 for sales of gas and oil boilers.

Fiscal incentives

[60] https://www.cpre.org.uk/news/planning-to-fail/
[61] https://www.rtpi.org.uk/policy-and-research/research/planning-agencies/

- Variable energy saving stamp duty incentive with rates adjusted in line with the energy performance of a property. House buyers would receive a reduced rate if a property is above a certain energy efficiency rating, a rebate for improvements carried out within 2 years, and an higher rate for less efficient properties, designed to be fiscally neutral.
- Council tax reform considering variable rates / rebates dependant on energy performance.
- Direct government grants for low-income households to support both energy efficiency improvements and the installation of low carbon heating.
- Encourage banks and lenders to offer low interest mortgage extensions and loans for retrofit for landlords and homeowners, where energy performance improvement targets are met.
- Adjust the gas and electricity tax regime (which currently strongly favours gas) for domestic customers, to incentivise the shift to heat-pump technology, whilst mitigating risks to those in fuel poverty.
- Reform EPCs to establish in-use energy performance as the rating metric (as opposed to cost), reducing the performance gap and also disincentivising gas usage, and enabling EPC ratings to be used as a meaningful regulatory driver in reducing emissions, by 2023.
- Accelerate SMETERS project working towards incorporation of actual measured energy data into the
- EPC methodology. Support the development of digital building renovation plans or 'passports' (in conjunction with industry) that inform evidence-based, retrofit pathways for existing building stock varieties and are held within a central property database.
- Support the development of the right market framework to enable financial incentives for individual consumers to trade energy flexibly and improve the route to market for pricing solutions such as flexible tariffs (e.g. Time of Use (ToU)).
- Remove VAT on refurbishment work (i.e. 0% VAT) where energy performance targets are met (to incentivise energy efficiency works whilst retaining VAT revenue from general improvement works)

Skills & Business:

- Create a national retrofit training and skills strategy, scaling up rapidly to meet emerging demand, working with trade associations within the home repair, maintenance and improvements (RMI) market, local skills partnerships, and informed by the Government's Green Jobs Taskforce and the CITB work on Building Skills for Net Zero.
- High profile promotion throughout the country with communications programme to inspire and recruit, targeting school leavers, those reskilling for career change in declining sectors and existing construction workers in need of upskilling.
- Leverage public procurement to build demand for skills and supply chains by providing a guaranteed pipeline to enable the transition away from traditional approaches and rapid expansion of market delivery capability. Incentivise and support firms to take on new apprentices.
- Update apprenticeship and training standards to align with the required retrofit delivery programme, optimising digital skills.

Non-domestic retrofit

National government action is needed to accelerate progress on commercial building retrofit. Many of our members are ambitious to raise the energy performance of buildings they own, manage or lease but face significant difficulties without government regulation to create an ambitious level playing field and to negotiate challenges such as access and allocation of responsibility between owners and tenants.

The Government should:

- Introduce performance-based rating schemes for existing non-domestic buildings via a phased approach:
- Introduce the planned performance-based rating system for large office buildings (>1,000m2) by May 2022, including mandatory energy performance disclosure.
- Introduce minimum standards and fiscal incentives for large office buildings by 2025, including separate minimum standards for new buildings (with suitable transitional arrangements). Fiscal incentives could take the form of penalties or discounts linked to existing or new taxation mechanisms.

- Introduce performance-based rating systems in other non-domestic sectors (and small office buildings) by 2025, followed by minimum standards and fiscal incentives for both new and existing buildings.
- By 2028 establish performance-based rating systems in remaining non-domestic sectors.
- Retain proposals for use of MEES in the non-domestic sector in the short to medium term. Review the need for MEES as policy lever as performance rating schemes become established.
- Review Landlord & Tenant Act 1954 to require by law that all new business leases include green lease clauses, the standards of which should be developed with industry.
- Remove VAT on refurbishment work (i.e. 0% VAT) where energy performance targets are met (to incentivise energy efficiency works whilst retaining VAT revenue from general improvement works)
- Introduce and clearly signpost a cut-off date of 2030 for the sale of gas and oil boilers.

New buildings:

Current building regulations (Part L) and energy rating mechanisms (EPCs) do not adequately predict or represent the actual performance of buildings in practice. In addition to the use of compliance tools and methodologies to predict performance at the design stage, a significant "performance gap" exists between design intent and building performance outcomes, due to multiple factors, including insufficient attention towards building handover.

To enable the transition to Net Zero, additional metrics will require focus, including measures to limit peak demand. Buildings designed in the coming years must also be equipped to deliver the energy performance levels required for Net Zero by 2050, to avoid the need for future retrofitting, and the risk of unnecessary future occupant disruption, cost and embodied carbon.

To effectively support businesses to develop net zero solutions and markets, the Government must send clear signals through regulation. These will help facilitate the development of net zero technologies and markets for them, stimulating innovation and, with sufficient lead-in time, allowing the market to build capacity. Likewise, it must maximise the use of its own role, through public procurement, to help supply chains and businesses to develop.

Key recommendations are:

For **new homes**:

- Update the National Calculation Methodology (NCM, as underpinned by SAP) and the EPC methodology to create a fit-for-purpose predictive methodology for energy performance of dwellings, that better reflects in-use energy performance.
- The 2025 Future Homes Standard and associated Building Regulations Part L 2025 update to introduce:
  – Energy Usage Intensity (EUI) targets inc. regulated and unregulated loads (kWh/m2 /yr).
  – Thermal energy demand limits (kWh/m2 /yr).
  – Low carbon heating for all new buildings (no fossil fuel combustion)
  – Measures to limit peak demand and enable load shifting (with limits on peak demand from 2030).
  – Minimum standards for currently unregulated key appliances with high influence on annual & peak demand, i.e. cooker hobs & showers.
- Stamp duty rates should be adjusted in line with the energy performance of a property (as part of wider policy across the market – see Existing Homes).
- Increased availability of green mortgages with reduced interest rates for the most efficient homes to stimulate market demand for future building efficiency standards (as part of wider policy across housing market – see Existing Homes).
- Enable accelerated planning approval for early adopters of future energy efficiency levels (with disclosure of performance on completion).
- Local planning authorities' ability to set more ambitious targets for new development should be retained until suitable EUI targets consistent with Net Zero are established within building regulations (i.e. 2025).

To update Building Regulations for **new non-domestic buildings** to include:

- Part L 2021 final statutory guidance to include mandatory provision of Energy Usage Intensity (EUI) forecasts (regulated and unregulated loads) for all buildings >1,000m2 .
- 2025 Future Buildings Standard and associated Building Regulations Part L 2025 update to introduce:
  – For office buildings >1,000m2 :
  EUI target (kWh/m2 / year) compliance approach in place of notional building methodology.
  – Thermal Energy Demand limits (kWh/m2 /year) for different building typologies.
  – Low carbon heating for all new buildings (no fossil fuel combustion).
  – Peak Load assessment (and ability for load shifting).
- Interim amendments to 2025 Building Regulations Part L to introduce EUI target compliance approach for additional sectors, aligned with mandatory energy performance disclosure dates :
  - 2027 amendments: Phase 2: Potential sectors: Offices <100m2, hotels, retail, warehouses, higher education
  - 2029 amendments: Phase 3: remaining sectors
- Align the introduction of the EUI compliance approach per sector with the timings of a confirmed mandatory energy disclosure timetable (with timetable to be confirmed ahead of 2025).
- 2030 Building Regulations to include: – Peak load limits demand limits (W/m2) for different building typologies.
- Local planning authorities' ability to set more ambitious targets for new development should be retained until suitable EUI targets consistent with Net Zero are established within building regulations per sector (i.e. 2025 onwards).

Embodied carbon:

Embodied carbon from new construction and refurbishment of buildings makes up approximately 19% of built environment emissions, but as operational emission levels from buildings are ratcheted down, the embodied component will become an increasing proportion of the total, with no simple mitigation option. By 2035, the trajectory results indicate that embodied carbon will form over half of all built environment emissions, with the domestic retrofit programme putting pressure on cumulative carbon budgets in the early 2030s.

Regulation of embodied carbon will be vital to unlocking new economic opportunities associated with new low carbon products, and reuse.

Embodied Carbon Regulation

The Government must implement a regulatory policy framework for upfront embodied carbon in new buildings, with clear signposting of a phased pathway:

- Mandatory measurement and reporting of Whole Life Carbon by 2023 for large buildings (>1,000m2) and residential developments (>10 dwellings).
- Minimum standards (limits) for Upfront Embodied Carbon by 2025 for more mature sectors (i.e. those with sufficient asset level benchmark data), with associated fiscal incentives and penalties.
- Minimum standards (limits) for Upfront Embodied Carbon by 2027 in all sectors.
  Final phase to introduce minimum standards for all size buildings (with a suitable minimum threshold) in all sectors by 2030.

Regulation must be supported with suitable data management and collection systems, tools, and incentives for industry to reduce embodied carbon. Building on progress already made within industry, Government will need to provide adequate support to areas such as embodied carbon data management, Environmental Product Declarations (EPDs), and circularity. Supporting recommendations include:

Data management

- Develop a freely available national embodied carbon assessment tool.

- Utilise existing industry resources to establish a national asset and product embodied carbon database, such as the Built Environment Carbon Database (www.becd.co.uk).
- Recognise and support the development of existing embodied carbon standards and benchmarks.
- Publish embodied carbon benchmarks (using industry standard methodology & carbon factors) and voluntary best practice standards by 2023.
- Support the industry in developing competency standards and QA processes for the assessment of embodied carbon.

EPDs

- Support the industry to develop EPDs (to EN15804 & 3rd party verified) at the scale and quality required.
- Incentivise and eventually require manufacturers to declare the impacts of their products.
- Provide financial support to SMEs for EPD development.

Circular Economy

- Remove VAT on refurbishment works (i.e. 0% VAT) which retain building structural frame and achieve energy performance targets (to incentivise re-use over demolition) – while proportionally increasing the VAT on new builds to make this change fiscally neutral.
- Establish a nationwide second-hand materials database, building on city-level networks.
- Update National Planning Policy Frameworks to require evaluation of embodied carbon impacts of new build before permitting demolition. Local Planning Requirements.
- Enable local planning authorities to set more ambitious limits on upfront carbon for new development than those introduced via Building Regulations.

Planning

Planning reform is essential if we are to fully unlock the economic growth associated with achieving the UK's climate and environmental commitments, whilst also delivering popular, energy efficient, new homes and the infrastructure needed for a truly resilient economy.

Despite recent changes, the planning system is currently failing to simply and effectively integrate carbon emissions and climate resilience when considering new development. This is holding back more sustainable development and substantial green investment across the country. Likewise, many local communities continue to see unsustainable, unpopular development built in unsuitable locations. Our experience is that the current system is not fit for purpose in terms of handling climate change and environmental considerations consistently in new development applications.

Current challenges include: uncertainty around bureaucratic barriers to low carbon technology in planning; the weight of climate and environmental issues in planning decision-making; and how to measure and integrate emissions and environmental factors when granting planning permission, including variable approaches across local planning authorities. The resulting inconsistency and lack of clarity contributes to increased delays, costs, and legal challenges. As well as ensuring proposals for the Future Homes Standard and the Future Buildings Standard are in line with achieving our environmental commitments, it is essential that these standards are complemented by a planning system which delivers a workable, simple, and strategic approach to systematically encourage more environmentally sustainable development.

Planning must urgently provide a more reliable framework to support green investment and development; helping to simultaneously deliver national commitments on nature restoration and net zero alongside new development and levelling up. Clear expectations on the face of legislation are essential to support consistent policy-making and drive cost-effective investment in the sustainable homes and developments the UK urgently needs. The Government must strengthen the new Levelling Up and Regeneration Bill by including a clear legal duty for planning decisions and plan making to explicitly align with achieving the UK's carbon budgets under the Climate Change Act and adaptation goals as linked to the climate change risk assessment. This is an essential step to reduce uncertainty over climate's relative weighting in the planning process.

A clear climate duty set in law is critical but reform should not stop there. It is essential that the Government develops a clear and easy to use methodology for testing local plan's carbon performance and assessing planning proposals. Unlike for housing numbers (Housing Delivery Test) there is no consistent government guidance on this testing. This vacuum is increasingly being filled by local authorities developing their own approaches. Conversely, there are clear advantages in standardising approach(es) for local application, including metrics. This would be less expensive for developers, and less disruptive to development.

Business appetite for a consistent, and workable approach to carbon in planning is clear from the various industry initiatives and research currently underway across the sector. Over 100 prominent UK businesses signed UKGBC and Aldersgate Groups' letter supporting calls for net zero to be at the heart of the planning system.[62] We strongly believe the Government has an essential role to play in delivering a system which will help reduce both inconsistency and uncertainty, in order to provide a more reliable, efficient, and cost-effective approach to sustainable development. Without action to develop a clear, and consistent approach to carbon in planning, backed by a clear legal duty, ambiguity in the current system could be increasingly used to challenge, slow down and frustrate much-needed, sustainable development.

In the upcoming review of the national planning policy framework, the government must ensure that stronger national planning policies that put in place to support the alignment of the planning system with net zero. This includes addressing key barriers to specific technologies and innovations, such as heat pumps, solar PV, shutters, and consistently encouraging sustainable measures as the default. Clear guidance and policy will need to be provided on re use and demolition to ensure the consistent, thorough consideration of embodied carbon within planning and associated decisions. Options for tackling whole life carbon through the planning system should be fully explored, including requiring whole life carbon assessments as recommended in UKGBC's guidance.[63]

At the landscape level, planning policy must support holistic approach to design that enhances local resilience to the impacts of climate change as well as reducing the carbon footprint of development. This includes guidance and requirements to ensure optimal orientation layout and site design, but also materials and landscaping. UKGBC's research into the embodied carbon impacts at the site masterplan level found that a 20.3% embodied carbon reduction was achieved between the 'baseline' and 'stretch' design scenarios, with a negligible impact on capital costs (0.6% increase).[64] 'Grey infrastructure' – comprised of roads, parking and kerbs – makes up 88% of the masterplan's total embodied carbon, and a wide range of simple, multifunctional and cost-effective interventions can be implemented today, including: minimising parking area to embrace the shift towards vehicle sharing, the use of swales to reduce stormwater drainage; and switching from asphalt to low carbon, permeable paving. However, the widescale delivery of such solutions across residential developments can only be achieved through more supportive and ambitious planning policy, including consistent measurement and reporting of embodied carbon.

To ensure successful green growth and help support the delivery of high-quality development new development, Local Authorities must be sufficiently resourced and upskilled, to ensure they can consistently deliver more sustainable development in planning. Local powers to set standards through planning must be retained but be part of a clear consistent trajectory and wider, more reliable approach to climate in national planning.

Public procurement

The UK public sector manages more than 300,000 individual properties, at a combined value of £515bn, which makes it the largest property portfolio in the country, and up to £31 billion of public sector construction contracts across economic and social infrastructure will be brought to market over the next year.[65] It is therefore crucial that the government leads from the front, using public procurement as a key vehicle to catalyse green growth and support the development of associated supply chains.

[62] https://www.ukgbc.org/news/businesses-call-on-government-to-put-net-zero-and-nature-at-the-heart-of-planning-system/
[63] https://www.ukgbc.org/ukgbc-work/new-homes-policy-playbook/
[64] https://www.ukgbc.org/news/masterplan-report/
[65] https://questions-statements.parliament.uk/written-statements/detail/2021-11-23/HCWS412; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1102386/14.116_CO_Construction_Playbook_Web.pdf ; https://www.gov.uk/government/publications/net-zero-estate-playbook

Following Britain's exit from the European Union, there are significant opportunities for further reforms to public procurement rules and regulations to deliver greener outcomes. Since 2019/20, several updated government sustainable procurement statements have already been issued. Crucially, the Government has indicated, through its Levelling Up and Brexit opportunities papers, alongside the net zero strategy, that it intends to pursue further reform to public procurement rules, in order to drive sustainable outcomes and specifically align with policy goals such as net zero.

To help maximise the potential for public sector to drive green growth, the Government should:

- Build on the proposed performance-based framework for large commercial and industrial buildings by committing to only occupy buildings above a minimum performance-based rating. This approach has played a very significant role in ensuring the success of the NABERS rating scheme in Australia.
- Update to the Government Buying Standard for new-build construction and major refurbishments, which has not been updated since 2011. The target should be derived from the data in the UKGBC Whole Life Carbon Roadmap.
- Extend the Public Sector Decarbonisation Scheme – beyond 2025 – to set out a longer term programme for supporting public sector investment into carbon saving measures. To at least 2030.
- Strengthen government targets & Greening Government Commitments into clear, mandatory commitments that are measurable, reportable, enforceable and funded. For example:
    - Sign up to the Science Based Targets initiative for the UK Government Estate, to ensure emissions reductions are consistent with the Paris Climate Agreement
    - Sign up to the WorldGBC Net Zero Carbon Buildings Commitment, that all buildings in the Government Estate will be net zero carbon in operation by 2030

4. What more could government do to support businesses, consumers and other actors to decarbonise?

See Question 3.

5. Where and in what areas of policy focus could net zero be achieved in a more economically efficient manner?

See Question 3.

Developing a clear, consistent and long-term trajectory for progressively more ambitious standards and built environment regulation, particularly in relation to new build standards, will help drive down the costs of key technologies and materials, accelerate the readiness and willingness of the supply chain to Invest, whilst also unlocking green investment and supporting associated business growth.

Measures to support businesses and consumers in relation to the rising costs of energy, i.e. gas and heating, must be linked to improving energy efficiency and the transition to low carbon heat. Data from the Energy Saving Trust indicates that retrofitted homes would represent significant value for money when compared to costly energy rebates. To insulate every loft and cavity wall that needs it would cost £12.5 billion, saving almost £4 billion a year in bills and enough to pay for itself within three years.[66]

6. How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?

[66] https://www.thetimes.co.uk/article/bailouts-cost-far-more-than-energy-efficient-homes-2gwk2rplj#:~:text=To%20insulate%20every%20loft%20and,to%20wean%20us%20off%20gas.

The transition to net zero in the built environment will be a vital element in delivering the UK's energy security by improving energy efficiency, consequentially reducing overall energy demand and transitioning to sustainable low carbon heat sources.

For every heat pump or similar gas-free heating system installed, the UK will save around £1,100 in wholesale gas costs at current prices.[67] If the 23 million homes with gas boilers switched to a heat pump or gas-free heating system, the savings in wholesale gas costs would be equivalent to around 1.2% of GDP.[68] As the UK imports around 60% of its gas, this saving is likely to significantly benefit the economy and the government's finances.[69] Analysis by the National Grid has highlighted that whilst there is sufficient gas supply between now and 2050 to ensure security of supply, as long as gas is in demand for heat and power, we will be exposed to price fluctuations in the global energy market that have driven current price rises.[70] The level of potential UK natural gas in 2050 is mostly influenced by the future of residential heat and hydrogen production, without substantive action, gas use could remain at 65% of today's levels, or alternatively, with sufficient action, full to just over 3%.[71]

Energy efficiency has the potential to reduce the UK's dependence on Russian gas imports by as much as 80% in a single year.[72] Households would see a saving of between £130 and £170 on average, and the capital investment from public and private sources of £6.7 billion would pay back within two years.[73] To 2025, a package could save the gas equivalent to 149% of Russian LNG imports. The cumulative total investment of £33.6bn could secure annual savings of between £145 and £240, paying back in five to nine years and lasting for many more.[74]

Deploying all energy efficiency measures to 2035 that are deemed to be cost-effective according to criteria used by the UK government to appraise public policies could save around one quarter of the energy currently used, equivalent to the output of six nuclear power stations the size of Hinkley Point C.[75] Allowing for falling equipment costs and including the wider benefits of energy efficiency improvements, it should be possible to cost-effectively halve energy demand in UK homes in the longer term.[76] Additional innovation in technology and delivery support by Government would allow us to go significantly further. We agree with the National Infrastructure Commission's recent letter on the critical role of building energy efficiency and low carbon heat in enhancing the UK's energy security and resilience.[77]

We also welcome the UK Infrastructure Bank's remit to explore funding for energy efficiency energy efficiency in its first strategic plan.[78] Mobilising capital at the scale required has been a significant challenge, and the UK Infrastructure Bank (UKIB) could be critical for accelerating progress to improve the UK's energy security through energy efficiency in low carbon heat, specifically through supporting local authorities, businesses and financial institutions, the UK Infrastructure Bank (UKIB) could help unlock healthier homes, lower energy bills, green jobs and significant carbon reductions. In order to address current pressures, the government should learn from examples such as Germany's national development bank, KfW. Between 2007 and 2017, their energy efficiency programme triggered investments of over €260bn supporting an average of 320,000 jobs per year, underpinning measures in over four million homes. For every €1 invested by the government, homeowners were motivated to borrow and spend a further €6. The German government has nearly recouped its outlay through increased VAT revenue alone. It has recently announced a massive €4.7bn top-up for the scheme in light of the new imperative to reduce demand for oil and gas, following Russia's invasion of Ukraine.[79] The UK Infrastructure Bank could similarly help unlock enormous energy savings through domestic retrofits.

Critically important to the success of the KfW scheme is that subsidies are offered for achieving deep retrofits through whole-house improvement, covering up to 50% of the total spent by the homeowner. For smaller retrofit measures,

[67] https://www.nesta.org.uk/report/how-the-energy-crisis-affects-the-case-for-heat-pumps/#content
[68] https://www.nesta.org.uk/report/how-the-energy-crisis-affects-the-case-for-heat-pumps/#content
[69] https://www.nesta.org.uk/report/how-the-energy-crisis-affects-the-case-for-heat-pumps/#content
[70] https://www.nationalgrideso.com/document/263951/download
[71] https://www.nationalgrideso.com/document/263951/download
[72] https://www.e3g.org/news/dash-from-gas-the-uk-can-quit-russian-gas-this-year-with-rapid-home-energy-saving-drive/
[73] https://9tj4025ol53byww26jdkao0x-wpengine.netdna-ssl.com/wp-content/uploads/Home-Energy-Security-demand-side-measures-to-lower-bills-and-get-off-gas.pdf
[74] https://www.e3g.org/news/dash-from-gas-the-uk-can-quit-russian-gas-this-year-with-rapid-home-energy-saving-drive/
[75] http://www.cied.ac.uk/wordpress/wp-content/uploads/2017/09/3900_UKERC_CIED_briefing_final.pdf
[76] http://www.cied.ac.uk/wordpress/wp-content/uploads/2017/09/3900_UKERC_CIED_briefing_final.pdf
[77] https://nic.org.uk/news/nic-ccc-letter-to-prime-minister/
[78] https://www.ukib.org.uk/strategic-plan
[79] https://www.e3g.org/news/achieving-energy-security-at-home-through-the-uk-infrastructure-bank/

the grant element of the loan is much more modest – therefore encouraging homeowners to go further, spurring additional environmental and economic gains. Second, the scheme must be long-term – avoiding the boom-bust grant cycles of the past which have burnt the installation industry, and confused homeowners. The long-term nature of the German schemes has provided confidence to invest in skills and supply chains. Treasury should work with the Infrastructure Bank, BEIS and financial institutions and installers, to develop an ambitious and long-term green homes scheme to secure energy efficiency at home. Currently, the Bank does not have the mandate to provide subsidies alongside loans – but the KfW example shows that these public investments can pay for themselves over time. Properly equipped, the Bank can play an important role within the green finance landscape to deliver a triple win for lower energy bills, getting off Russian gas, and reducing emissions.

7. What export opportunities does the transition to net zero present for the UK economy or UK businesses?

By 2030 global exports for low-carbon goods and services could be worth £1.0–1.8 trillion a year, seven to 12 times more than today.[80] ONS data shows there are currently 81,000 businesses associated with the UK market for low carbon goods & services, with significant potential export opportunities, with the UK notably leading in low carbon advisory services.[81] This as evidence highlights that our current export potential is already significant, but could be much more significant if key areas were targeted further investment. There are clearly opportunities for export growth even in sectors where the UK may not be a leading innovator. Analysis suggests such potential exists in energy storage and low emissions vehicles in particular; but also in energy efficiency products, low-carbon energy (including waste-to energy), waste recovery and low-carbon heat.[82] Some of these are large sectors with massive potential and securing even a small market share would create substantial export values for the UK. The UK is already a net exporter of insulation and energy efficiency retrofit goods and services, and growing the sector through domestic action could increase the associated economic potential further.[83]

[80] https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2017/04/Carvalho-and-Fankhauser-2017.pdf
[81] https://www.ons.gov.uk/economy/environmentalaccounts/datasets/lowcarbonandrenewableenergyeconomyfirstestimatesdataset
[82] Ricardo AEA, 2017. UK business opportunities of moving to a low carbon economy, London. Available at: https://www.theccc.org.uk/publication/uk-energy-prices-and-bills-2017- report-supporting-research/.
[83] https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1730/173004.htm#footnote-358 ; LSE, Grantham Institute, UK Export Opportunities in the Low Carbon Economy (2017); For statistics on performance of the energy efficiency sector, see: Office for National Statistics,

Questions for businesses

The following answers have been developed from UKGBC's own research and an extensive survey of our members and those of the Better Buildings Partnership (BBP) conducted to inform this review.

8. What growth benefits/opportunities have you had, or do you envisage having, from the net zero transition?

The following data has been collected from a survey of UKGBC and BBP members business members from across the construction, property and related sectors.

To what extent do you agree with the following statements:

"The net zero transition is the principal economic growth opportunity for the built environment".	
Strongly Agree	51%
Agree	41%
Neither Agree nor Disagree	5%
Disagree	3%
Strongly Disagree	0%
Unsure	0%

How do you / does your organisation feel about what the new Government will mean for greening the sector? (Pre 20 Oct)	
Concerned	89%
Unsure	11%
Unconcerned	0%

"If the UK does not turbocharge the net zero transition in relation to the built environment, its global economic competitiveness will be harmed"	
Strongly Agree	50%
Agree	38%
Neither Agree nor Disagree	10%
Disagree	2%
Strongly Disagree	0%
Unsure	0%

"Support for the net zero transition in the built environment is essential in order to solve the cost-of-living crisis in the medium term."	
Strongly Agree	42%
Agree	44%
Neither Agree nor Disagree	12%
Disagree	2%
Strongly Disagree	0%
Unsure	0%

From extensive polling and engagement with members of UKGBC and BBP it is clear that there is a consistent recognition across the sector of the economic value of the net zero transition to the built environment and associated sectors, with 82% in agreement that it represents the primary economic growth opportunity for the sector. Likewise, 88% were in agreement that failure to turbocharge the transition would harm the UK's global competitiveness.

In terms of economic benefits of net zero recognised at both the business and project level, 67% highlighted operational cost savings, such as water and energy, with examples highlighting indicative trends of 40% operational savings across projects. 33% highlighted mutual cost and carbon savings from circular economy principles, such as re-use and 52%

highlighted the value of direct investment in low carbon products, services and supply chains (see question 13). UKGBC's case study library and reports such as the value of circular economy include further details and examples of individual projects and associated savings in terms of both materials and operational energy.[84]

In terms of finance, 14% highlighted the reduced costs of capital. Although associated investment and asset value corresponded to size, figures were substantial in relative terms. These ranged from budgets of £50 million to invest in new technologies to lending under net zero conditions of £11.2 million to £1bn. Examples of low carbon and net zero asset value ranged from £80 million to development pipelines worth > £20 billion. Indicative figures suggested projects and growth associated with the net zero transition would raise future business income by around 1/5.

In-house job creation was directly highlighted by 57% of members. Whilst job growth varied significantly in line with the size of organisation, some had seen their sustainability teams double in two years. Others had created roughly 4-7 roles in the last six months in line with rising consumer demand. With predictions for medium-large businesses highlighting the potential for 15-20 roles in future.

Again, in responding to their call for evidence, UKGBC members have emphasised unequivocally that future revenue, growth, jobs and investment is highly dependent on clear and sufficiently ambitious Government policy to help provide certainty needed to enable future investment decisions.

9. What barriers do you face in decarbonising your business and its operations?

In discussing the barriers to successfully decarbonising their businesses and operations, our members have consistently highlighted issues around stop-start government policy and a lack of clear, ambitious policy support for the net zero transition. The lack of a clear policy trajectory in regulation and long-term support for decarbonisation through initiatives such as the Green Homes Grant has served to create uncertainty and hold back investment. An Industry survey of 70+ top clients in July 2022 found 90% of respondents did not think current UK policies were sufficient to accelerate the transition to net zero carbon.

Addressing the skills gap in the built environment has also been identified as a key barrier. CITB's Building Skills for Net Zero report has outlined that to deliver on our net zero aims, 350,000 new roles will need to be created in the construction industry, an increase of around 13% on the current size of the workforce.[85] The Heat Pump Association estimates we will need an additional 12,400 heat pump installers by 2025 and 50,200 by 2030.[86] Although the number of retrofit co-ordinators has risen to 506, it is clear that accelerated progress is needed to meet the 30,000 target by 2028.[87] This is not something that the industry can tackle alone. As the training sector is predominantly demand-led, the Government must help to provide clearer signals about future pipelines of work, and a rapid response from the training sector to deliver the right skills. Because of the time it takes to develop high quality training and mobilise the sector to deliver at scale, action on this must be taken immediately.

The Government has rightly recognised the green skills gap in our sector in the Heat and Buildings Strategy and through the work of the Green Jobs Taskforce and associated Green Jobs Delivery Group.[88] Whilst recent initiatives such as the skills bootcamps, the lifetime Skills guarantee, National Skills Fund, etc. are welcome, progress remains insufficient to meet associated targets.[89] The government must continue to work closely with the sector to ensure it provides sufficient support and delivery mechanisms to enable delivery of the recommendations of the green jobs task force and associated sector skills road maps.

[84] https://www.ukgbc.org/solutions/ ; https://www.ukgbc.org/ukgbc-work/how-circular-economy-principles-can-impact-carbon-and-value/
[85] https://www.citb.co.uk/media/vnfoegub/b06414_net_zero_report_v12.pdf
[86] https://www.heatpumps.org.uk/wpcontent/uploads/2020/06/Building-the-Installer-Base-for-Net-Zero-Heating_02.06.pdf
[87] https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2022/10/CLC-Press-Release-18-October-2022-CZ-3rd-Performace-framework-Publication.pdf
[88] https://www.gov.uk/government/publications/heat-and-buildings-strategy ; https://www.gov.uk/government/publications/green-jobs-taskforce-report ; https://www.gov.uk/government/news/green-jobs-delivery-steps-up-a-gear
[89] https://www.edie.net/uk-government-not-on-track-to-achieve-green-jobs-target-latest-official-data-suggests/

10. Looking at the international market in your sector, what green opportunities seem to be nascent or growing?

The following are a combination of responses from members, as well as from our own research for the solutions library. We look internationally for solutions in the built environment, and our answers relate to the international market. Due to our UK membership and operations, many are connected to UK-based businesses and industries. The key economic opportunities that are nascent or growing relating to net zero in the built environment highlighted by our members include:

- Circularity in the built environment, including keeping valuable resources such as building materials within ongoing use as much as possible, reduce the embodied carbon on projects and avoid the costs associated with waste and reproduction. A more circular economy has the potential to create jobs and new business opportunities. In the built environment emerging trends in this area (both domestically and internationally) include:
    - Digital marketplaces for reused building materials.
    - New materials made from waste streams
    - New construction methods to prevent damage to materials at end of life encouraging onward reuse.
- Physically retrofitting buildings at scale and pace to increase energy efficiency is an opportunity to reduce energy bills, provide jobs and reduce the demand on the grid. Emerging trends in this including:
    - Platforms to finance, streamline and automate parts of this building decarbonisation process
    - Companies which use offsite construction to maximise efficiency of retrofit and minimise disruption to occupants
    - Physical products which help address specific energy wasting issues in buildings (smart airbricks, smart radiator controls, smart window controls, robots to insulate floors voids)
- Related to the above point, digitally retrofitting buildings for energy efficiency can also have similar benefits. Solutions in this area involve monitoring energy consumption in buildings and consequently enabling its optimisation, either through recommending actions or through automatically making adjustment using smart controls. These digital platforms can also provide a vast amount of data for how we occupy and consume energy in buildings.
- Low carbon concrete is a rapidly growing area which is a huge opportunity due to vast quantities of concrete being used worldwide.
- Technologies that optimising the timing of energy consumption to avoid peak demand and high carbon intensity of the grid. These technologies can result in saving on energy bills as increase the resilience of the grid.
- Retrofitting for climate resilience / weatherisation to reduce the impact on buildings of weather events like overheating and flooding, in turn reducing the financial costs.
- Linked to the above, using digital platforms to identify climate risks to real estate assets in order to prioritise interventions and disclose risks.
- Modern methods of construction offer the opportunity to increase construction speed, safety and quality, reduce waste, reduce disruption and congestion on site, and often result in improved energy performance.
- ESG investing (see question 1).

11. What challenges has the net zero transition presented to your business?

UKGBC has undertaken analysis of the effect on cost of new net zero buildings, office and high-rise new-build residential. This has been done by modelling costs on a residential build-to-rent project in the southeast with 209 units. The focus of this analysis has been on changes to capital cost and does not seek to make the value case for net zero buildings. The value case is significant when considering current market trends, such as investor pressure through the Task Force on Climate-related Financial Disclosure (TCFD), stranded asset risks, corporate ESG drivers, and increasing occupier interest in net zero.

The cost uplift for the intermediate scenarios were calculated as 6.2% for office and 3.5% for residential compared to the baseline scenarios. This cost uplift can be considered feasible today given these costs will likely be offset by the

value benefits, including increased rental premiums, lower tenancy void periods, lower offsetting costs, and lower operating/ lifecycle costs.[90]

However, the cost uplift for the stretch scenarios were more significant at 8-17% for office and 5.3% for residential. This is perhaps not surprising as the net zero targets for 2030 are substantially more demanding and the marketplace is not yet geared up to delivering them at scale. This could also be partially offset by an increase in rental premiums and decreased void periods, as well as avoiding the risk that the building will become a stranded asset in future. While there was only limited analysis conducted on the life cycle costing of some components in the office tower, accounting for life cycle savings shows promise in increasing the value of net zero buildings. To overcome this cost premium, we need a long-term consistent regulatory trajectory that tightens standards over time so as to provide the certainty and level playing field required for the supply chain to innovate and costs to come down.

12. What impacts have changing consumer choices/demand had on your business?

See Question 8.

Rising demand particularly in relation to ESG investing, technology and organisational commitments have meant members continue to see momentum and interest building in products and services associated with sustainable development. As outlined in question 8, rising demand has contributed significantly to organisational growth and investment value. Further growth and investment prospects can be facilitated and secured through ambitious policy and government support.

13. What impacts have decarbonisation/net zero measures had on your business?

Measures to reduce carbon through circular economy measures have demonstrated the potential to deliver significant cost-savings at the project level.

As outlined in UKGBC's Insights on how Circular Economy principles can impact carbon and value report there can be both embodied carbon and cost reductions through using reused and reclaimed materials on projects. Research by one of our members indicates that the reuse of structural steel could see a 95% carbon saving kilo for kilo with a 10-40% cost saving depending on how the steel is sourced and procured[91]. In one project the reuse of the steel structure saved 260tCO2. Similarly, the reuse of the façade on the 1 Triton Square project produced a 2,400tCO2e saving compared to a new façade and contributed to a 15-18.5% cost savings on the project[92]. The refurbishment of the façade also supported local jobs in Essex. The reuse of raised access flooring on projects has also seen a 20% upfront embodied carbon saving compared to buying new in one, and another saved 85tCO2 through reuse compared to purchasing new raised access flooring[93]. For one of our members purchasing reused and refurbished furniture saved £40,000 compared to new with the chairs having 61% CO2e reduction compared to new chairs[94].

14. What more could be done to support your business and/or sector to decarbonise?

Our members have been clear that ambitious, clear government policy, targeted financial and investment support will be critical in supporting businesses and the wider sector to decarbonize. (See question 3).

15. Do you foresee a role for your business within an expanded UK supply of heat pumps, energy efficiency, electric vehicles, hydrogen economy or clean power?

[90]

[91] https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2022/08/23174556/Whole-Life-Carbon-Circular-Economy-Report.pdf
[92] https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2022/08/23174556/Whole-Life-Carbon-Circular-Economy-Report.pdf
[93] https://ukgbc.s3.eu-west-2.amazonaws.com/wp-content/uploads/2022/08/23174556/Whole-Life-Carbon-Circular-Economy-Report.pdf
[94] https://www.ukgbc.org/solutions/case-study-jll-manchester-office-fit-out/

UKGBC's membership includes businesses and organisations across the entire value and supply chain related to the built environment, construction, and property sectors. Our members will therefore have a critical role in supplying, enabling, and developing the technologies and services required to successfully decarbonize the built environment.

16. For clean power industry: what barriers to entry have you found in deploying new plant and technologies?

17. How many green jobs do you estimate will be created in your sector by 2030?

Industry and professional bodies across the sector all in clear agreement around the significant job creation potential decarbonizing the boat environment represents. There is an expectation it will result in the creation of at least 250,000 green jobs, attracting at least £36bn in private sector investment, with additional figures linked to specific interventions and areas within the sector provided within this response.[95]

Research from UK100 indicates that nearly half a million builders, electricians and plumbers will be needed to help meet the Government's objective of becoming Net Zero by 2050.[96] The Local Government Association estimates that by 2050 in England there will be an estimated 238,000 jobs in low carbon heat, 152,000 in energy efficiency and 164,000 in low carbon services.[97]

Questions for the public

N/A

18. **Have you or are you planning to take personal action to reduce your carbon emissions (for example through how you travel, what you buy, how you heat your home)? If so, how?**
19. **Do you face any barriers to doing this? What are they?**
20. **What would help you to make greener choices?**
21. **What is working well about the measures being put in place to reach net zero?**
22. **What is not working well about the measures being put in place to reach net zero?**
23. **Do you have any further comments on how efforts to tackle climate change are affecting you?**

Questions for local government, communities and other organisations delivering net zero locally

UKGBC's membership includes members of the business community in the construction property and related sectors, as well as local authorities. We work closely with local authorities through our place-based and local policy related programmes, including Accelerator Cities and our local Authority forum, which provide advice, guidance and share best practice.

24. What are the biggest barriers you face in decarbonising / enabling your communities and areas to decarbonise?

In 2019, UKGBC's Accelerator Cities Pathfinder' project partnered with five cities and consulted with dozens more, to analyse what support cities and local authorities need to galvanise greater action on low carbon home retrofit. Although initially focused on retrofit, many of these barriers are relevant to wider decarbonization efforts.

[95] https://www.constructionleadershipcouncil.co.uk/constructzero/
[96] http://www.uk100.org/wp-content/uploads/2020/07/REVISED-FINAL-Resilient-Recovery-Taskforce-Launch-200702.pdf
[97] https://lginform.local.gov.uk/reports/view/lga-research/estimated-total-number-of-direct-jobs-in-low-carbon-and-renewable-energy-sector?mod-area=E09000006&mod-group=AllBoroughInRegion_London&mod-type=namedComparisonGroup

Key barriers include:

LA Level:

- Authority aversion to risk
- Lack of a long-term strategy and short-term funding / annual budgets
- A lack of capacity and in house skills
- Limited coordination between local authorities
- Concerns over planning powers and limits to flexibility

National level:

- national policy uncertainty
- the lack of a clear strategy, clear regulation and long-term planning for funding
- energy performance certificates are not fit for purpose
- planning and building regulations do not adequately address retrofit and required net zero standards

Costs and finance:

- high upfront costs and the hidden costs and uncertainties of dealing with existing buildings
- the lack of finance mechanisms and coherent and offerings from institutional investors
- the lack of government-backed fiscal incentives
- incentives for more able to pay households.
- loan and grant schemes have prioritised single measures which limits the whole house approach to retrofit

Supply Chain:

- Suppliers have been decimated by stop start policy and funding cycles
- skills shortages
- loss of confidence in long term policy direction
- construction and procurement are focused on cost not quality

Technical:

- complexity in getting whole house retrofit right
- the performance gap the lack of measurement and monitoring
- diversity in the UK's housing stock, including age
- existing grid constraints
- heritage and conservation issues

Tenure issues:

- landlord / tenant split and responsibilities
- The challenge of meeting multiple tenures

Householder offering:

- failure to tap into householders' psychologies and motivations, and poor communication of information about the benefits of retrofit and available funds.
- retrofit seen in terms of return on investment rather than improving quality of life
- hassle and a lack of knowledge
- a lack of trusted installers and 3rd party advice

Guidance on how to overcome many of these barriers has been provided through the UKGBC's retrofit playbook.[98] UK100's Power shift report also provides extensive information on the barriers to local authority action and the powers needed to overcome them.[99]

25. What has worked well? Please share examples of any successful place-based net zero projects.

Since the introduction of the 2012 Public Services (Social Value) Act, there has been significant focus on social value as a key concept in articulating and maximising the benefits felt from high quality, sustainable development and delivering successful, place-based net zero projects.

Work done through UKGBC's social value programme has produced extensive guidance on how to maximise the delivery of social value of sustainability through built environment projects and a placemaking approach.[100] This includes a step-by-step process for delivering social value that can be flexibly applied to any built environment project of any scale – from a single built asset to an entire town regeneration project.[101] The main features of the guide include:

- An updated 8-step Process for Delivering Social Value,
- Supplementary delivery checklists for senior decision-makers to use when leading built environment projects,
- Detailed guidance notes aimed at practitioners who are responsible for day-to-day project delivery,
- Best practice case study examples.

In particular, research through Delivering Social Value: Community Engagement Hacked highlighted likelihood of creating positive social value is higher the more communities are engaged with their built environment. The report showcases innovative approaches to community engagement to inspire practitioners to think more creatively about how the sector engages with communities to ensure more successful, sustainable, place-based projects.[102]

Further detailed case studies are avalible through UKGBC's solutions library.[103]

In addition, UKGBC's place-based initiative Foreground worked to develop an effective model for convening host cities and their partners together with expert practitioners from across the built environment sector in a workshop process designed to inform and influence the sustainability aspirations of the major schemes in question. It analysed not 'what' innovative and leading sustainability practice looks like for major new development schemes, but 'how' to deliver it. Key outputs from the process were designed to support the needs and requirements of our host city and their partners, and were designed to support the business case for high quality, sustainable development.

This process was intended to go beyond supporting the ambitions of one local authority and one development, producing a 'Playbook' to enable leadership on other large-scale development or regeneration schemes by sharing key lessons and approaches from across programme.[104] This is designed to enable knowledge-sharing across local authority or public sector clients, and is widely applicable to private sector clients as well. The Playbook aims to provide help and inspiration for any local authority wanting to play a pro-active role in raising the ambition of major regeneration schemes, including case studies. Guidance covers key of themes illuminated during the process, such as innovative approaches to finance and value; procuring for radical outcomes; and innovations in community engagement and governance.

26. How does the planning system affect your efforts to decarbonise?

[98] https://www.ukgbc.org/ukgbc-work/driving-retrofit-of-existing-homes/
[99] https://www.uk100.org/sites/default/files/publications/Power_Shift.pdf
[100] https://www.ukgbc.org/ukgbc-work/social-value-programme/
[101] https://www.ukgbc.org/ukgbc-work/a-guide-for-delivering-social-value-on-built-environment-projects/
[102] https://www.ukgbc.org/ukgbc-work/delivering-social-value-community-engagement-hacked/
[103] https://www.ukgbc.org/solutions/
[104] https://miro.com/app/board/o9J_lC4jRns=/

On the current barriers planning represents to delivering decarbonisation in the built environment, see question 3.

Broadly speaking, planning is fundamental to decarbonising the built environment in terms of determining what we build and where. It is likewise the gatekeeper for delivering the infrastructure that will underpin zero carbon

Planning's role in placemaking give it the granularity to recognise local distinctiveness, and unlike building regulations apply approaches and standards suitable for the locality. This includes being able to go further and faster in cutting emissions when there is healthy development viability. It has the capacity to advance a holistic approach to placemaking and good design, as well as securing meaningful consent as part of a wider democratic conversation with the local community. Planning also has the potential to help secure decentralised energy, and in doing so ease the strain on the national system.

The planning system must be reformed to ensure it is brought into line with the UK's net zero target trajectory and the right planning policies and mechanisms are put in place to deliver a consistent and robust approach to carbon in the local plan making and development processes.

27. How can the design of net zero policies, programmes, and funding schemes be improved to make it easier to deliver in your area?

UKGBC brings together over 35 local authorities in a retrofit network to discuss common challenges, share best practice and develop solutions and recommendations. Local authorities consistently tell us that the capital funds administered by BEIS are overly restricted, complex, competitive and short-term are resulting in missed opportunities to build supply chains of local businesses, skill up local people and plan to deliver retrofit work with a much more cost-efficient area based approach.

Problems:

- Funded schemes are fragmented, e.g., LAD 1A, 1B, 2, 3; HUG 1, 2; SHDF 1, 2.1.
- The eligibility criteria are also very restrictive and can change at short notice, meaning that delivery is pepper potted with some homes in an area eligible and neighbours just missing out. This is very inefficient to deliver, damages community engagement and restricts supply chain development. Socioeconomic assessment of different HUG/LAD delivery approaches would be useful.
- Application processes are too burdensome for example SHDF Wave 2.1, involved a 34-page application form (before answers), 11 annexes, and spreadsheet with 16 tables per RP. Reporting too is onerous. Too much data is required too frequently creating unnecessarily high administrative overheads for projects.
- Short-term stop-start funding does not allow Local Authorities to recruit, which means workload has to be tagged-on to existing staff who are already stretched, often resulting in one person managing 3 or 4 programmes. This leads to retention problems and loss of expertise. The supply chain is not interested in delivering low volumes of measures in a short period, so will not recruit or train additional operatives.
- A lack of joint working with DLUHC on mutual priorities misses regeneration and local economic recovery opportunities.

Solutions:

- One scheme for Private Sector Housing and one scheme for Social Housing.
- Eligibility criteria would be better devolved to city regions to determine based on their residents and housing stock and focused on essential KPIs, such as increase in EPC band, carbon emissions reductions, SAP EPC increases per £x, low-income properties improved, fuel savings, etc. This would ensure the money is spent effectively but give flexibility to deliver the right scheme.
- A useful model for BEIS to replicate would be ELENA (European Local Energy Assistance) programme.
- Make allocations to city regions based on expertise and past performance instead of competitions for each round of funding. Also, link in funding allocation with DLUHC on Area Regeneration.
- Long-term (4 to 5 years) secure core funding would support a better delivered programme and improve delivery and procurement process. It is needed to enable recruitment and retention of project management teams in local authorities and to give confidence to local supply chains to skill up and scale up, retain installer

expertise and provide confidence for growth. Longer-term funding would also allow local authorities to smooth out delays caused by factors outside Local Authority control such as COVID, planning permission delays etc.

28. Are there any other implications of net zero or specific decarbonisation projects for your area that the Review should consider?

Questions for academia and innovators

29. How can we ensure that we seize the benefits from future innovation and technologies?

The following are suggested actions to seize the benefits from future innovation and technologies:

- More education on the benefits of investing in sustainable technologies, products and solutions.
- Creating innovation districts which allow for real life testing of sustainability solutions in a variety of contexts.
- Creation of cross-sector collaboration opportunities to share learnings from different areas.
- Requiring transparency and open data resulting in more informed sustainable decisions and innovations.
- Green public procurement.
- Innovation in financial models, particularly in insurance to make organisations less resistant to implementing new solutions due to perceived risks.
- Upskilling programme to ensure people are able to manage and capitalise on the new technologies and their implementation
- Continue to invest in R&D at a national level and make sure funding is available for testing new technologies and approaches.
- Continue to invest in research and accelerator hubs.

30. Is there a policy idea that will help us reach net zero you think we should consider as part of the review?

As outlined throughout this response, significant policy actions and interventions are required to accelerate the transition to net zero most maximising the considerable potential to deliver green growth. (See question 3).