

Decarbonising the built environment Government policy scorecard

December 2022



Foreword



Bold ambitious government policy to decarbonise the built environment is a huge opportunity for the economy and for green businesses. It is mission critical for meeting the UK's climate commitments. But our new analysis shows it is largely missing. Here we have assessed the policies of the Government over the past year and identified the big gaps and big wins available if the new Government now seized the moment.

Ahead of COP26, the Government launched its Heat and Buildings Strategy as a key plank of its Net Zero Strategy. But this was widely seen as piecemeal and unambitious. Shortly afterwards, at COP26, the UK Green Building Council launched its Net Zero Whole Life Carbon Roadmap for the Built environment with a comprehensive set of policy recommendations for government that would transform the built environment, supported by members from across the supply chain. The hope was that the Government would draw on this collective industry effort to strengthen its own policy portfolio.

But one year on, the courts have found that Government policies to meet net zero do not stack up and need to be renewed. The Climate Change Committee's Chair Lord Deben says the Government has to be congratulated on setting world leading commitments, but its delivery is "appalling". Our own new analysis in this Scorecard comparing Government approach specifically on the built environment to the policies recommended in the UKGBC Roadmap, shows an alarming lack of progress. Most areas are red rated meaning detailed policy frameworks are largely missing, flawed or do not put the UK on the path to meeting our climate commitments. We have seen baby steps when we need giant leaps.

The new Government has a chance to put things right with a proper strategy to insulate our 30 million homes and buildings and our economy from gas price hikes, and to make sure all new homes and buildings are genuinely net zero carbon and fit for a warming climate. The size of the prize is huge in terms of saved energy bills, energy security, secure jobs and levelling up and export opportunities. Stepping up action in this area is the definition of smart government and smart investment. It would put the UK on track to solving multiple crises, from fuel poverty and pressure on the NHS to skilling up our workforce and driving up productivity. Every pound invested by the Treasury would bring a return of £2 to the economy and drive billions in private investment.

The message from COP27 is that we are fast running out of time. Our trailblazing members have shown that industry is ready and willing to take on the challenge, but they are calling for national government leadership to make the exceptional normal. UKGBC hopes that this report will serve as a wake-up call and stands ready to convene champions from across industry to support the Government to ratchet up its ambition and policy making this year.

Julie Hirigoyen
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Introduction

Buildings are the UK's second largest source of climate emissions after surface transport. With time running out to keep global temperatures to 1.5 degrees, a laser-like focus on the policies needed to decarbonise this sector is essential. This scorecard on the Government's policies assesses progress over the past year since the Heat and Buildings Strategy was launched in October 2021 and shines a light on the big opportunities the Government must grasp in order to cut emissions and boost the green economy in the year ahead. It compares the policies that have been announced or are in delivery against the comprehensive set of policy recommendations made in the UKGBC's Net Zero Whole Life Carbon Roadmap for the Built environment which enjoys broad industry support. In each of the key areas – operational carbon, embodied carbon and infrastructure, we have assessed the significance of the policy area, the policy gaps and the size of the economic prize if Government takes action this year. We have colour coded progress in each area using the criteria set out here.

Red, amber, green criteria key:



Most of the Government's proposals or plans for an area are not in line with our recommendations or the needs of a net zero carbon built environment for the UK. Or that there are significant gaps or flaws, which mean that current plans would fail to deliver progress towards (or actively hinder) UKGBC's milestones for the sector. The structure or approach of proposals in their current form may be fundamentally inadequate, or actively at odds with achieving our desired sustainability outcomes.



We recognise that progress has been made in a policy area, and that the proposals brought forward by the Government are a positive, but insufficient, step towards achieving what is required for the sector. We may partially support the direction of key policies and the content of a range of proposals. However, these would not be sufficient in their current form to align with UKGBC milestones, recommendations, and goals for the sector without significant alterations. Proposals brought forward would form a workable baseline in terms of amendments and changes to promote our objectives. Equally, they would also not have glaring omissions or contain ideas which would fundamentally harm or compromise progress.



UKGBC supports the direction of policy in an area. It is either broadly in line with our recommendations or principally compatible.

UK Green Building Council members are committed to net zero and need national government to set out a clear trajectory to achieve that in the built environment. Whilst often they are frontrunners in their field, they need a comprehensive set of policies to drive industry-wide progress, create incentives for crowding in billions of pounds of investment and encourage tens of thousands of people and businesses to skill up and scale up respectively.

This analysis has been produced to help the new Government to understand industry's concern at the lack of progress and understand where the opportunities lie for the year ahead. We hope it offers a way forward and inspires enthusiasm for grasping the economic and wider societal opportunities associated with success in this mission. It can also serve as a useful practical tool for businesses in their own engagement with government officials and ministers.

Key findings

Operational energy



1a) Existing homes

Cutting energy waste from homes is one of the biggest opportunities the Government has this year to simultaneously tackle the cost-of-living crisis, energy security, inflation and levelling up. While the Government has introduced some funds and initiatives for those in fuel poverty, social and local authority owned housing, these reach a small fraction of the homes that need attention. There are almost no policies to encourage and support owner occupiers to decarbonise their homes (which represents the vast majority of the UK's domestic properties). No national retrofit strategy has been bought forward setting out a vision or comprehensive route to upgrade all the UK's homes.

Chancellor Jeremy Hunt's political commitment in the November Autumn Statement that energy saving would now be 'just as important' as energy generation, together with the announcement of a new ambition to cut energy use by 15% by 2030, could signal an important shift in approach. The test will be if this is backed up by a national strategy and proportionate government investment to deliver on it.

1b) Existing non-domestic buildings

Policy on decarbonising non-domestic buildings appears to be frozen. Proposals have been consulted on regarding in-use performance measurement in large industrial and commercial buildings, but policy decisions have not been forthcoming. Property owners, managers and tenants are calling for urgent and ambitious policy to enable them to guide investment and decision-making to decarbonise and cut energy bills.

1c) New buildings

Few homes and buildings built today are net-zero and adapted to our changing climate. The Future Homes and Buildings Standard to be introduced in 2025 is the big opportunity to put that right. The Government's draft Future Homes and Buildings Standards falls far short. The forthcoming consultation on this must set us on a path to new buildings that are genuinely zero carbon and adapted to the changing climate. Industry needs maximum clarity on this in order to prepare to deliver zero carbon buildings at scale and to drive the associated workforce skilling and cost reductions.

Reforming England's planning system to support climate and nature goals rather than frustrate them will also be critical. The Levelling Up and Regeneration Bill currently progressing through Parliament and forthcoming changes to the NPPF must be used to ensure new developments and infrastructure are fit for purpose.

Embodied carbon



This is a huge gap in Government policy and every year of delay both drives up the costs of reaching net zero and misses significant opportunities to grow our green economy.

The Government has indicated from several strategies and responses that it is considering policy options around embodied and whole life carbon more widely, but no clear proposals have been forthcoming. The forthcoming Future Homes and Buildings Standard must not ignore embodied carbon.

Industry and infrastructure



There is an emerging set of policies, funds and schemes to address industrial and infrastructure emissions connected to the built environment, including via the UK emissions trading scheme (UK ETS), changes to public procurement, and to support innovation and early deployment, including on CCS, fuel switching, and hydrogen.

However, there are still several significant policy gaps including on resource and energy efficiency, targeted action on key materials, further action on off-road mobile machinery and the volume of emissions from smaller operations that are outside the UK ETS.



Analysis

Driving down energy waste through the operation of the country's buildings is one of the biggest wins available to the Government in the year ahead. As households and businesses struggle with soaring energy bills, this area of policy couldn't be more important, yet little progress has been made over the past year.

Policies in place for operational energy in homes are piecemeal and are not designed to drive the scale and pace of change needed. We welcome the new political commitment made by Chancellor Jeremy Hunt in the November Autumn Statement that energy saving would now be 'just as important' as energy generation. Together with the announcement of a new ambition to cut energy use by 15% by 2030, a new public information campaign and a new taskforce, this could signal an important shift in approach from the Government. The test will be if this is backed up by a national strategy and proportionate government investment to deliver on it. We also welcome that some home decarbonisation grant schemes have received significant increased funding this year but still they reach a fraction of the households in need. Large holes remain in policy for home decarbonisation, in particular incentives and practical support for owner occupiers to insulate their homes such as an energy saving stamp duty incentive. In some areas, such as minimum energy efficiency standards, Government consultations which suggested encouraging policy developments, have stalled and not resulted in positive policy announcements.

Policy development on decarbonising non-domestic buildings appears to be frozen, apart from in the public estate where some important progress is being made. The Government's draft Future Homes and Buildings Standards would leave new homes built from 2025 falling significantly short of the Government's test of 'zero carbon ready' and be unfit for a rapidly warming climate. They will leave another generation of homeowners saddled with unnecessarily high energy bills and retrofit costs, put significant strain on the electricity grid and water supplies and put households at risk of flood damage and overheating.

Without further policy in these areas, progress towards achieving net zero will be fundamentally compromised. Given the context of rising costs of energy, comprehensive Government policy to reduce energy use is even more essential to help relieve cost of living pressures, tackle inflation, and deliver energy security.

The economic opportunities associated with action are substantial. Through our Net Zero Whole Life Carbon Roadmap, UKGBC has endorsed the Construction Leadership Council's (CLC) blueprint for a national retrofit strategy, which estimates that upgrading the nation's housing stock would generate roughly 500,000 new jobs in the sector, with £2 put back into the economy for every £1 invested.¹ Both retrofit and higher new build standards are crucial for addressing cost of living pressures associated with rising gas prices. Latest estimates show savings of nearly £800 a year for the average household and over £4k for poorest performing homes.² Likewise current schemes can lower bills by 70-90%.³ The picture is similar for businesses and commercial property. 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.⁴

1 <https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2021/05/Construction-Leadership-Council-National-Retrofit-Strategy-Version-2.pdf>

2 https://ca1-eci.edcdn.com/reports/ECIU_Zero_Carbon_Homes_Final.pdf

3 <https://ilkehomes.co.uk/2022/02/uks-first-home-to-guarantee-zero-energy-bills-to-be-launched-in-essex-saving-residents-up-to-40000/>

4 https://issuu.com/passivhaus_trust/docs/why_passivhaus_2013_final

4 <https://policyexchange.org.uk/wp-content/uploads/2017/09/Clean-Growth-1.pdf>

1a) Existing homes

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
<p>Publish a National Retrofit Strategy by 2022, setting out a clear national homes upgrade programme to 2040.</p> <p>This should be fully coordinated with local government, industry, and relevant stakeholders via a Central Retrofit Agency, deploying digital building renovations plans/passports to accurately describe Net Zero pathway(s).</p>	<p>In the November 2022 Autumn Statement the Chancellor Jeremy Hunt made a political commitment that energy saving would now be 'just as important' as energy independence [generation]. He announced a new 'national ambition to reduce energy demand from buildings and industry by 15% by 2030'; a new Taskforce to oversee it and a commitment to £6 billion of additional funding from 2025 - 2028. The Government also announced an £18 million boost to the Help for Households public information campaign to advise on how households can save money on bills whilst keeping warm.</p> <p>Boiler Upgrade Scheme (BUS) (£450 million over 3 years) Grants of up to £5000 per household to install low carbon heating solutions.</p> <p>Green Home Finance Innovation Fund competition (£1.8 million) 3 winning projects will develop different green finance products and will pilot them to incentivise energy efficiency retrofit in homes.</p> <p>Green Home Finance Accelerator programme – Will provide up to £20 million in grants to support UK retail lenders to design, develop and pilot a range of finance propositions which encourage domestic energy efficiency and low carbon heating retrofits.</p> <p>Whole House Retrofit (WHR) competition (2020) £7.7 million to the 3 winning organisations to investigate and demonstrate means to reduce domestic retrofit costs.</p> <p>Heat pump ready programme – Funding to support innovation, trials and research to address key barriers across the heat pump sector. (More info here).</p> <p>Smart Meter Enabled Thermal Efficiency Ratings (SMETER) Innovation Programme (2019) – aimed to develop, test and demonstrate technologies that measure the thermal performance of homes, using smart meter and other data.</p> <p>UK Infrastructure Bank (First Strategic Plan) UKIB committed to explore how it could finance local authority and private projects, including pilots, that will accelerate the deployment of energy efficiency measures and low carbon heat.</p> <p>GOV.uk energy efficiency advice service</p> <p>A new ECO+ scheme providing £1 billion funding from Spring 2023 for up to 3 years, for households in the least energy-efficient homes lower Council Tax bands.</p>	<p>Although the Government has unveiled several funds and initiatives designed to encourage home retrofit, this has not formed a coherent strategy to upgrade the UK's housing stock to reach the Government's target to make as many homes as possible to achieve EPC band C by 2035 where cost effective, practical and affordable (Clean Growth Strategy).</p> <p>Interventions have so far focused largely on households struggling with bills and low carbon heat technologies, such as heat pumps. A major domestic energy efficiency programme and/or set of incentives targeting households not in fuel poverty remains the main missing element.</p> <p>Additional support will be required to ensure technologies and associated skills are scaled up to meet the required trajectory.</p> <p>The new public information scheme to encourage and provide general guidance to households on energy saving measures is an important advance. In addition, householders will need more specific advice on the measures they should take in their home, how to find a skilled trusted installer and what support schemes they are eligible for.</p> <p>The political commitment and new level of ambition could signal an important shift in approach from the Government.</p> <p>The ambition to reduce energy use by 15% by 2030 is a welcome strengthening of the Government's commitment and in line with the trajectory set out by the Climate Change Committee. The Taskforce is an opportunity to ensure policies and investment are now brought into line with that ambition.</p> <p>The ECO+ scheme is a welcome addition to the suite of Government schemes as it is focused on households struggling with bills but not eligible for current support. More than £1 billion over 3 years will be needed to support this group. The additional funding announced is welcome, but a fraction of the urgent investment needed from government.</p>

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
Introduce mandatory minimum EPC ratings of C, for owner-occupied homes at the point of sale by 2028.	No announcements.	Unlike proposals by the Scottish Government , the UK Government has not indicated any plans to require specific EPC rating at the point of sale for owner occupied homes.
Establish a clear trajectory for improving the Minimum Energy Efficiency Standard (MEES) for the domestic rented sector to at least EPC C by 2028.	<p>Consultation on Improving the Energy Performance of Privately Rented Homes in England and Wales including introducing a requirement for EER band C minimum requirement on 'new tenancies' from 1 April 2025 and 'all tenancies' by 1 April 2028 (closed Jan 2021).</p> <p>A Decent Homes Standard in the private rented sector: consultation (closes Oct 2022)</p>	<p>The Government response to the consultation on domestic MEES has been delayed considerably, generating uncertainty as to the outcome and potential ambition. UKGBC supported the backstop date for all tenancies by 2028 and new tenancies in 2023.</p> <p>Plans to introduce a Decent Homes Standard in the private rented sector are less ambitious than what the PRS Minimum Energy Efficiency Standard already requires (EPC Band E) and significantly below what has been proposed.</p>
Reform EPCs to establish in-use energy performance as the rating metric	<p>EPC Action Plan and EPC Action Plan Progress report 2021</p> <p>SAP review (SAP 11) and Reduced Data SAP (RdSAP) methodology update used for existing buildings</p> <p>BEIS commissioned report into the future SAP 11 methodology for Future Homes standard (Now published)</p> <p>'Further research' on in-use performance (H&B strategy)</p>	<p>Governments plans to reform EPCs have so far not included a commitment to move to in-use performance.</p> <p>This will be critical to address the 'performance gap' between the theoretical benefits of energy efficiency and low carbon heat installations and the actual results. With this approach, retrofits become a much more secure investment proposition helping to mobilise the billions in private investment needed. It will also allow our homes to play an active role in balancing and reducing pressures on the electricity grid as heat becomes largely electrified.</p>
Introduce a cut-off date of 2030 for the sales of gas and oil boilers.	"Ambition" for no new boiler installations from 2035. (H&B strategy)	The change of wording from initial suggestions of a 'target' to become an 'ambition' or 'aim', was disappointing, as a clear cut-off date is essential to provide an unambiguous signal for the market. In addition, the date of 2035 is later than the date recommended in UKGBC's roadmap of 2030.
Introduce variable stamp duty rates adjusted in line with the energy performance of a property.	General stamp duty relief (Growth Plan Sept 2022)	<p>An energy saving stamp duty is one of the most powerful policies available to government to encourage owner occupiers to upgrade their homes by linking the energy performance of the property to its market value.</p> <p>The announcement of a planned stamp duty relief and further discounts through investment zones in the Growth plan was a missed opportunity to use stamp duty as a link the tax to promoting energy efficiency, in line with proposals supported by UKGBC.</p>

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
Remove VAT on energy efficiency retrofit works.	<p>Zero-rating VAT for the next five years on energy saving materials and installation, including insulation and low carbon heating. (Spring Statement March 2022)</p>	<p>Reductions to VAT on energy saving materials and installation are a welcome step. However, VAT should also be removed on refurbishment works which retain building structural frame and achieve energy performance targets (to incentivise re-use over demolition) – while proportionally increased on new builds to make this fiscally neutral. VAT should also be removed from batteries when installed subsequently to solar panels.</p>
Introduce direct government grants for low-income households.	<p>Expanding the Energy Company Obligation to £1 billion per year from 2022-2026, (Growth Plan Sept 2022)</p> <p>The Sustainable Warmth Competition – funding to local authorities including:</p> <ul style="list-style-type: none"> • Local Authority Delivery Phase 3 (LAD3) scheme for low-income homes heated by mains gas • Home Upgrade Grant Phase scheme for low-income households off the gas grid <p>Social Housing Decarbonisation Fund. (£3.9 billion manifesto commitment; demonstrator projects £61 million; Wave 1 = £160 million; Wave 2 = £800 million)</p>	<p>Several funds have been created to assist those in fuel poverty, social housing, and/or vulnerable households. These have been scaled up over the past year which is very welcome. Whilst these have evidently delivered some important progress, particularly in supporting local and combined authorities to develop targeted upgrade schemes, the funds only support a small proportion of the properties that need to be upgraded.</p> <p>The schemes themselves provide very short term funding which is so narrowly targeted with such short delivery windows that the opportunity to begin to build the local supply chains and associated skills needed to upgrade the country's homes is missed. Scaling up the funding for these schemes and changing the way they work is a major opportunity this year.</p>
Other relevant policies	<p>Temporarily moving green levies from electricity bills onto general taxation.</p> <p>Consultation on Improving Home Energy Performance through Lenders (Feb 2021), which sets out a range of proposals that could improve the energy performance of mortgaged properties, including: proposals to improve awareness of the energy performance of lenders' portfolios; and a target-based approach for improving the energy performance of lenders' portfolios.</p>	<p>This is welcome. General taxation is a more progressive way to pay for the vital investment in renewable energy generation and home energy efficiency schemes that the levy funds. Artificially inflating the cost of electricity over gas has been one of the barriers to electrifying heat and moving away from the UK's gas dependency. This move should be made permanent or the green levies should be moved onto gas bills, but should not be returned to electricity bills.</p> <p>The full results of the consultation have not yet been published.</p> <p>While supporting the intention behind the proposals – and a move towards disclosure and targets – further work should be done to address the risks of unintended consequences. In particular, care must be taken to avoid a two-tier market, where some homeowners who live in poorer-performing properties and/or have low-income levels might be squeezed out of the mortgage market altogether or penalised with higher rates.</p>

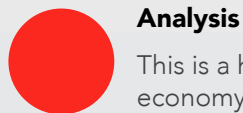
1b) Existing non-domestic buildings

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
<p>Introduce in-use energy performance-based rating schemes for non-domestic buildings in a phased approach between 2022-2029, including mandatory energy disclosure, minimum performance standards and fiscal incentives.</p>	<p>Proposals to introduce a national performance-based policy framework for rating the energy and carbon performance of commercial and industrial buildings above 1,000m² in England and Wales, with annual ratings and mandatory disclosure as the first step (June 2021), including considering how a new operational ratings scheme would align and interact with the existing Display Energy Certificates (DECs) framework.</p> <p>Published in two parts: 'Introducing a performance-based policy framework in large commercial and industrial buildings in England and Wales' and 'Introducing performance-based ratings in commercial and industrial offices above 1000m² in England and Wales: phase 1 of the introduction of a national performance-based policy framework'.</p> <p>Further research on in-use performance indicated in the H&B strategy. SAP Review.</p>	<p>Policy in this area appears to be frozen. The consultation on proposals for a performance-based policy framework and ratings system in commercial industrial offices was welcome. However, the Government's official response is still yet to be published.</p> <p>In particular, the Government must define what pace of improvement in performance ratings it expects to see between now and 2030/2040, with greater clarity on the scope of this scheme and a timeframe for bringing all non-domestic buildings into the scheme. Additional clarity should be given on how often the Government will review progress, to judge if further incentives/penalties are required to achieve its aims. (See more here)</p>
<p>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.</p>	<p>No proposals.</p>	<p>No progress in this area.</p>
<p>Retain proposals for use of MEES in the non-domestic sector in the short to medium term. Review the need for MEES as energy performance rating schemes become established.</p>	<p>Non-domestic Private Rented Sector minimum energy efficiency standards: EPC B implementation (closed June 2021) a consultation on the proposed framework to improve implementation and enforcement of the EPC B target by 2030 for privately rented non-domestic buildings.</p>	<p>The Government's decision that the future trajectory for the non-domestic MEES will be EPC B by 2030 is welcome. However, Government's official response to the consultation on non-domestic MEES has been significantly delayed, prompting concerns that proposals will be watered down.</p> <p>The Government must introduce of a range of compelling incentives to ensure that as many buildings as possible are improved to band B as early as possible; and/or consider bringing forward the 2030 target to an earlier date.</p>

1c) New buildings

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
<p>For 2025: Energy Usage Intensity (EUI) target (kWh/m² /yr) compliance approach for new office buildings >1,000m² and new homes (35-40 kWh/m² /year for new homes).</p> <p>Thermal Energy (Space Heating) Demand limits (15 kWh/m² /year for new homes). Low carbon heating for all new buildings</p> <p>Measures to limit peak demand and enable load shifting (with limits on peak demand from 2030).</p> <p>Minimum standards for currently unregulated key appliances – also see Five Key Tests</p> <p>2027-2029 Interim amendments in 2027 and 2029 to introduce EUI target compliance approach for other sectors, aligned with mandatory energy disclosure timetable.</p>	<p>2025 Future Homes Standard – Inc. That a home built to the Future Homes Standard should produce 75-80% less CO₂ emissions compared to Part L 2013. Due for consultation in 2023.</p> <p>2025 Future Buildings Standard (does not include a target or any detail for 2025, inc. metrics).</p> <p>Future Homes Hub – Delivery Plan – industry led work to develop the best longer-term approach to building performance evaluation.</p>	<p>Today only a tiny proportion of new homes and buildings are net zero and resilient. The Future Homes and Buildings Standard, set to be consulted on in the coming months and introduced in 2025, is the opportunity to put that right.</p> <p>UKGBC has developed 5 Key Tests for a net zero and climate resilient Future Homes Standard which assesses the Government's draft proposals and sets out the principles for success. We also responded to an earlier government consultation on the Standard.</p> <p>Current proposals for the Standard represent a step forward but are far from being 'zero carbon ready' and achieving the Government's goal of new buildings not needing to be retrofitted in the future.</p> <p>They will leave another generation of homeowners saddled with unnecessarily high energy bills and retrofit costs, put significant strain on the electricity grid and water supplies and put households at risk of flood damage and overheating.</p> <p>Although the full details for the proposals are still being developed, there has been no clear indication that the Government is actively considering in-use or absolute performance / operational energy metrics. The Climate Change Committee CCC has also warned in their latest June 2022 Progress Report, that they are not confident the recently introduced interim FHS will drive sufficient change in the new build sector prior to 2025.</p> <p>Our analysis demonstrates that new net zero carbon and resilient homes and buildings are technically feasible today but that updates are needed to future standards to enable the industry to deliver truly net zero carbon new homes at scale.</p> <p>As the Government seeks to use new development as a springboard for economic recovery and levelling up, putting in place the right policies for future homes and buildings is a major opportunity for the green economy and for making homes and buildings more affordable to run. Planning reform should be designed to deliver net-zero not encourage a race to the bottom.</p>

Embodied carbon



Analysis

This is a huge gap in government policy and every year of delay drives up the costs of reaching net zero and misses significant opportunities to grow our green economy.

UKGBC's Net Zero Whole Life Carbon Roadmap found that embodied carbon accounts for 24% of built environment emissions. Comprehensive proposals and policies to address embodied carbon in the built environment are yet to be introduced. Whilst progress has been made in terms of government department workstreams to address product standards and discussions around the role of planning – specific regulation and planning policies have not yet emerged. Future consultations in relation to potential regulation and changes to planning policy have been indicated for 2023, however clarity on future regulation is lacking. The nature and content of potential planning reform in particular will be vital.

Measures to tackle embodied carbon through low-carbon materials, reuse and a circular economy approach represents a significant economic opportunity to the sector. 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 2030.⁵ Shifting towards more circular economy activities has the potential to decrease demand for imported goods and increase jobs locally, especially through repairs and reuse.⁶ Over the next 10 years it is estimated the circular economy market could boost economic growth by up to 4%.⁷ 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.⁸

Roadmap recommendations

Use planning reforms to prioritise reuse of existing buildings and assets, and disincentivise demolition and new build.

UK Government policies & announcements

“Government intends to consult in 2023 on our approach and interventions to mainstream the measurement and reduction of embodied carbon in the built environment.” [EAC Response 2022](#)

The Government will review the National Planning Policy Framework to make sure it contributes to climate change mitigation and adaptation as fully as possible. It has indicated incentives for developers to pursue retrofit compared to demolition are ‘best addressed’ through the review of the NPPF. The Government indicated that whole life carbon assessments (WLCAs) may have a significant role to play in delivering this change.

Embodied and whole life carbon are considerations currently included in the [National Model Design Code](#).

Although no official planning policies has been introduced, individual planning [judgements](#) and [reviews](#) by the Secretary of State have cited embodied carbon.

UKGBC assessment

Ongoing discussions around embodied carbon, inclusion in the national model design code and plans to review the national planning policy framework in this context are welcome.

Reforming planning policy to address retrofit and reuse will be essential, alongside the embodied footprint of development at the masterplan level through grey infrastructure and site-level design choices.

However, clear and definitive policy will be needed to drive meaningful progress.

5 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003570/gjtf-report.pdf

6 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1003570/gjtf-report.pdf

7 https://www.ing.nl/media/ING_EZB_Financing-the-Circular-Economy_tcm162-84762.pdf

8 <https://www.ukgbc.org/ukgbc-work/how-circular-economy-principles-can-impact-carbon-and-value/>

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
<p>Introduce the regulation of embodied carbon for new buildings and major refurbishments:</p> <ul style="list-style-type: none"> • 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. 	<p>The call for evidence: ‘Towards a market for low emissions industrial products’, on demand-side policy to investigate how to define low carbon products and the emissions reporting requirements, including references to Environmental Product Declarations (EPDs) closed in February 2022. A summary of responses is still due to be published. Building on this evidence, the Government is preparing to consult on “a range of domestic measures, including emissions reporting, defining low emissions products, product standards, and a potential Carbon Border Adjustment Mechanism by the end of 2022.”</p> <p>“Working across Government and Industry to develop and test Whole Life Carbon methodologies for major built assets.” (Net Zero Strategy)</p> <p>“Longer-term work to consider the future of energy efficient buildings beyond the Future Homes Standard and the Future Buildings Standard”, expected to consider embodied carbon, “with a view to exploring a maximum level for new builds in the future” (Net Zero Strategy)</p>	<p>Whilst consultations in relation to specific products, definitions and reporting are welcome, additional policy on minimum standards in relation to upfront embodied carbon, and mandatory whole life measurement and reporting for large buildings etc is clearly missing and will be required urgently to ensure a coherent approach to decarbonisation and tackle embodied emissions.</p> <p>UKGBC’s roadmap indicates embodied carbon accounted for 24% of built environment emissions in 2018, and is projected to rise to 50% by 2035.</p> <p>The Government’s draft Future Home Standard does not include any material reference to embodied carbon despite consultation respondents urging that the FHS shift towards regulation. Strengthening operational energy requirements whilst leaving embodied carbon unchecked could result in perverse outcomes.</p>
<p>Allow local planning authorities to set more ambitious limits on upfront carbon for new development than those introduced via Building Regulations – also see UKGBC New Homes Playbook</p>	<p>National Model Design Code & engaging with local authorities through the National Model Design Code Pathfinders Programme offering support on themes related to the coding process, such as those that focus on sustainability and energy addressing whole life carbon targets.</p> <p>Proposed planning reform inc. Levelling up and Regeneration Bill National development management policies & the NPPF review and vision prospectus.</p> <p>The Construction Playbook sets out best practice guidance for the Public Sector. This includes where authorities should adopt the use of whole life carbon (WLC) assessments and require that solutions put forward by potential suppliers are accompanied by a whole life carbon assessment.</p>	<p>Whilst local authorities currently have the ability to set more ambitious policies, and current support in relation to developing design codes is welcome, concerns remain over the role of National Development Management in relation to future flexibility, and the alignment of the planning system more broadly with net zero in light of recent judgements. Additional clarity and resourcing support clearly is needed to ensure local authorities can help effectively drive progress.</p>
<p>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.</p>	<p>(See operational)</p>	



Analysis

Whilst progress has been notable in certain areas, it is vital that momentum is accelerated to fill the broader [emissions gap](#) and address key delivery risks.

There is an emerging set of policies, funds and schemes intended to address industrial and infrastructure emissions connected to the built environment, including via the UK emissions trading scheme (UK ETS), changes to public procurement, and to support innovation and early deployment. Several key policies, funds and strategies are targeted specifically on CCS, fuel switching, and hydrogen.

However, there are still several significant policy gaps including on resource and energy efficiency, targeted action on key materials, further action on off-road mobile machinery and the [40% of emissions](#) from smaller operations that are outside the UK ETS. Likewise, the overall scale of the emissions challenge remains significant.

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
Introduce the role of a National Infrastructure Integrator to enable holistic decision-making across UK infrastructure planning with full visibility of all carbon impacts.	No policy.	No progress has been forthcoming on a National Infrastructure Integrator.
<p>Demonstrate leadership within public procurement via an Infrastructure and Projects Authority (IPA) commitment to the CSIC Carbon Reduction Code (which includes integrating carbon reduction targets and reporting commitments explicitly in all procurement documents from 2021).</p> <p>Set a requirement for all regulators to develop an explicit first-order objective to support the transition to Net Zero by 2050.</p> <p>Mandate for PAS 2080 to be fully implemented across all Infrastructure projects by 2025.</p>	<p>At COP26 in November 2021, the Industrial Deep Decarbonisation Initiative (IDDI) launched an emissions disclosure pledge which brought together campaign members to begin requiring the disclosure of embodied carbon emissions of structural materials, such as steel, cement, concrete, used in major public construction projects, starting no later than 2025. Members of the pledge are encouraged to promote the use of consistent reporting standards.</p> <p>Through the IPA's cross-Whitehall working group, the Government is exploring the introduction of a set of industry recognised standards and guidance for WLC assessment for, in the first instance, reporting under the IPA's Government Major Projects Portfolio (GMPP).</p> <p>The Procurement Bill does not include any specific provisions on the Government's target to achieve net zero carbon emissions by 2050. However, it will require contracting authorities to have regard to national and local priorities as set out in a National Procurement Policy Statement to be published by the Government, and the Wales Procurement Policy Statement, to be published by Welsh Ministers.</p> <p>The Construction Playbook sets out best practice guidance for the Public Sector. This includes where authorities should adopt the use of whole life carbon (WLC) assessments and require that solutions put forward by potential suppliers are accompanied by a whole life carbon assessment. On major projects, appropriate adoption is tested through central controls where projects meet the controls thresholds and governance within the Contracting Authorities. As a result, central testing does not cover all construction projects and there are no plans to collect and publish this information under the construction playbook.</p>	<p>Whilst policy and stated intentions regarding public procurement have been advancing in the right direction, action is needed to strengthen and require specific reporting requirements and standards.</p> <p>The Government must ensure net zero standards are applied to procurement processes, building projects, buying standards and across the existing, occupied Government estate, including minimum energy efficiency standards for government buildings based on operational ratings.</p> <p>In addition, the Public Sector Decarbonisation Scheme will need to be extended beyond 2025 to set out a longer-term programme for supporting public sector investment into carbon saving measures.</p>

Roadmap recommendations

Drive and support 'low regrets' energy efficiency and fuel switching measures within industry to enable the decarbonisation of construction supply chains.

UK Government policies & announcements

A consultation was held in July 2021 on strengthening ESOS. BEIS sought views on improving the quality of audits through increased standardisation of reporting requirements, the inclusion of a Net Zero element to audits and requiring public disclosure of high-level energy efficiency recommendations by participants.

BEIS introduced proposals on the future of Climate Change Agreements including changes in eligibility, mandatory adoption of energy management systems for participants in future, annual reporting, and consideration of how to tackle the overlaps in data collection across similar schemes. BEIS is leading the UK involvement in the Industrial Deep Decarbonisation Initiative (IDDI) to establish a common roadmap and principles for public construction whole life carbon reporting. The IDDI is an international alliance that aims to create markets for low carbon industrial materials. In addition, BEIS is planning a roadmap on when the IDDI will issue guidance on harmonisation of product level embodied carbon disclosure and on carbon limits for steel and cement inputs into public construction.

The Government has introduced a number of pilot and transition funds to decarbonise industry:

- Industrial Energy Transformation Fund £315 million
- Phase 3 of the Industrial Energy Efficiency Accelerator (IEEA) programme £8m
- Industrial Decarbonisation Challenge £170 million
- Industrial Fuel Switching competition 2 £55 million
- Industrial Heat Recovery Support | £18 million
- Transforming Foundation Industries | £66 million
- £250 million Clean Steel Fund (2023) (dormant)
- The Timber in Construction (TiC) Innovation Fund £1.5 million
- Call for Evidence to inform proposals for industrial product standards.

The Environment Act 2021 provided the framework to set legal targets and policies on resource efficiency, but the publication of key targets has been delayed.

The Government backed Green Construction Board published a Routemap to Zero Avoidable Waste in construction in July 2021, identifying the actions required across the construction process.

UKGBC assessment

The Government had put forward proposals for updating the Climate Change Agreement (CCA) scheme and the Energy Savings Opportunities Scheme, but no final decisions final outcomes have yet been realised.

Whilst pilot and transition funds are welcome, greater action is required, particularly in relation to demand side policy.

Delays in introducing resource efficiency targets as part of the Environment Act leaves industry without a clear set of expectations that they can plan to deliver against.

Roadmap recommendations

Support the development of Carbon Capture and Storage (CCS) for use in industry, to deal with hard to abate emissions for which there are no alternative mitigation options, e.g. process emissions from cement production. Deliver on plans for initial CCS deployment in two industrial clusters by 2025 with two more by 2030.

Work with concrete and cement sectors to identify feasible options for CCS deployment and transportation in dispersed sites.

UK Government policies & announcements

The Government has committed to work with the minerals industry to consider options for dispersed sites, building on the report published in August 2020 (BEIS, CCS deployment at dispersed industrial sites, 2020). Acknowledging currently CCUS is the only viable option for addressing these emissions. ([Industrial Decarbonisation Strategy](#))

The [Industrial Decarbonisation Strategy](#) contained an action to “work with the cement sector to explore options to decarbonise sites in dispersed locations.” To advance this, the Government will work with manufacturers through the Green Construction Broad (GCB) to better understand the opportunities and barriers to decarbonise the manufacture of cement, as well as plans by individual manufacturers, for the purposes of supporting policy development.

The sector is carrying out demonstrations of a ‘zero carbon fuel mix’ for cement kilns in 2021, funded by the BEIS fuel switching programme. Further research, funded by the BEIS Industrial Energy Efficiency Accelerator programme, is enabling the sector to formulate and demonstrate new low carbon multi-component cements for the UK market.

The Green Construction Board (GCB) published its [Low Carbon Concrete Routemap](#) in April 2022. A new UK Concrete Decarbonisation Taskforce, convened by the ICE, will oversee the delivery of the Routemap. This group will update the report each year and monitor progress across the industry.

The Government will work with manufacturers through the GCB to better understand the opportunities and barriers to decarbonise the manufacture of cement, as well as plans by individual manufacturers, for the purposes of supporting policy development.

Additional support for, and initiatives relevant to, the development of CCUS more generally include:

- The [UK Infrastructure Bank](#)
- [CCUS Infrastructure Fund](#) | £1 billion – [Design of the Carbon Capture and Storage \(CCS\) Infrastructure Fund](#). The government has committed to deploy carbon capture, usage and storage (CCUS) in 4 industrial clusters, aiming to capture 10MtCO₂ a year by 2030.
- Net Zero Innovation Portfolio. The CCUS Innovation 2 competition July 2021 – £19.5 million
- [Carbon capture, usage and storage \(CCUS\): investor roadmap](#)
- [Carbon capture, usage and storage \(CCUS\): Dispatchable Power Agreement business model](#) (consultation closed June 2022)
- [Future policy framework for power with carbon capture, usage and storage \(CCUS\)](#): call for evidence Closes Oct 2022.
- [Carbon capture, usage and storage \(CCUS\): business models](#). Closed 2019, Government responded Aug 2020.
- [Carbon capture, usage and storage \(CCUS\): Industrial Carbon Capture business model](#). Closed June 2022
- [Carbon capture, usage and storage \(CCUS\) supply chains: a roadmap to maximise the UK's potential](#). Published May 2021
- [Carbon capture, usage and storage \(CCUS\): duties and functions of an economic regulator for CO₂ transport and storage](#). Closed 2021, Government has responded.
- [Carbon capture, usage and storage: amendments to Contracts for Difference regulations](#). Closed Sept 2021.

UKGBC assessment

The Government has committed to work with the sector on Carbon Capture Utilisation and Storage (CCUS) deployment and transportation at dispersed sites, and further policy is being developed. However, the specific detail is yet to be forthcoming.

Whilst welcome policies, funds and initiatives targeting CCUS continue to emerge and develop, the Government must ensure that targeted measures are introduced to ensure these strategies and aims are realised, and the associated business models brought forward.

The Government has provisionally decided that the first two CO₂ transport and storage clusters to be constructed will be the HyNet and East Coast clusters.

In November 2021, Government launched the process for individual projects, including manufacturing, to apply for support to connect to the first transport and storage networks. The Government is expecting to make final decisions on allocating support under this phase from Q2 2023 – later than previously indicated.

The mechanism for supporting manufacturing CCS projects – the Industrial Carbon Capture (ICC) business model – is nearly finalised, although slightly behind the Government's initial timelines

Roadmap recommendations

Support the deployment of hydrogen within industry to aid decarbonisation (i.e. for high temperature processes), and adopt a transparent and robust science-based approach to the options available for hydrogen production.

UK Government policies & announcements

[UK Hydrogen Strategy](#). Sets out a roadmap for the development of the wider hydrogen economy over the 2020s to deliver the 10GW 2030 ambition.

[Hydrogen sector development action plan](#). Building on the UK Hydrogen Strategy, this action plan assesses the supply chain, skills, investment and export opportunities across the value chain necessary to achieve the 10GW ambition for hydrogen. It also sets out our approach to monitoring and evaluation (M&E) to learn lessons and a benchmark for progress going forward.

[UK low carbon hydrogen standard](#). The consultation closed in Oct 2021 and the Government has formally responded. Hydrogen producers applying for Net Zero Hydrogen Fund and Low Carbon Hydrogen Business Model funding will need to follow the steps set out in the standard guidance document to ensure their hydrogen production pathway complies with the LCHS.

Proposals for [hydrogen transport and storage business models](#). This consultation seeks views on new business models for hydrogen transportation and storage infrastructure by 2025 Following the Government's commitment in the British Energy Security Strategy. It closes November 2022.

[Design of a business model for low carbon hydrogen](#). The consultation closed in October 201 and the Government has formally responded, confirming the intention to proceed with a contractual, producer-focused business model, applicable to a range of hydrogen production pathways and able to facilitate hydrogen use in a broad range of sectors. The Government aims to finalise the hydrogen business model in 2022, and to allocate the first support contracts for projects reaching final investment decisions from 2023.

[Hydrogen investor roadmap](#), includes investment opportunities across the hydrogen value chain and summarises policy announcements: including the Net Zero Hydrogen Fund to support deployment; Business Model to ensure long-term revenue support; Low Carbon Hydrogen Standard to enable market access and certainty for end use.

Enabling or requiring hydrogen-ready industrial boiler equipment: [call for evidence](#). Closed March 2022.

[Hydrogen Business Model and Net Zero Hydrogen Fund: market engagement on electrolytic allocation](#). The Government response summarises feedback received via the market engagement exercise and confirms: the eligibility criteria which projects must meet in order to be eligible for the 2022 Hydrogen Business Model (HBM) / Net Zero Hydrogen Fund (NZHF) Electrolytic Allocation Round.

Hydrogen Grid R&D programme: the Government is supporting a range of research, development and testing projects designed to help determine the safety, feasibility, costs and benefits of converting the natural gas grid to carry 100% low carbon hydrogen. The Government aims to make a policy decision by the mid-2020s on the future of hydrogen for heating.

[Net Zero Hydrogen Fund](#) | £240 million. Consultation ran until Oct 2021. The NZHF's grant allocation has been split into 4 strands. The application window for strand 1 and 2 have closed. Strand 4 application process will begin in early 2023.

Other relevant sources of funding and related initiatives:

- Net Zero Innovation Portfolio
- HySupply competitions
- Industrial Fuel Switching competition 2 £55 Million
- Hy4Heat
- Industrial Hydrogen Accelerator Programme | £26 million
- Hydrogen Revenue Support Scheme
- £40 million Red diesel replacement competition
- Industrial Energy Transformation Fund, £170m
- Industrial Decarbonisation Challenge
- Energy Innovation Programme | £505 million
- Renewable Heat Incentive | £684 million (per year)

UKGBC assessment

The Government has introduced a considerable body of consultations, strategies and initiatives designed to support the development of industrial hydrogen use.

Initiatives must continue to support targeted sector momentum, and ensure a robust, science-based approach to the production of sustainable hydrogen.

In addition, the importance and future of hydrogen policy must be considered within the context of the wider emissions challenges for the sector.

Roadmap recommendations	UK Government policies & announcements	UKGBC assessment
<p>Ensure carbon pricing policies such as UK ETS continue to drive deep industrial decarbonisation over the long term whilst maintaining competitiveness and minimising carbon leakage.</p> <p>Considerations must include links with the EU ETS, the future of free allowances, and an equitable supply adjustment mechanism which keeps pace with the EU Carbon Border Adjustment Mechanism (CBAM) and, once tested, may enable the phase-out of free allowances.</p>	<p>Under the UK ETS, a proportion of allowances are allocated for free, with the initial approach similar to that of the EU ETS (Phase IV). The UK ETS 2021 consultation included considering the role that free allowances play in mitigating carbon leakage as the UK moves towards net zero. In the immediate future, government's preferred method for mitigating the risk of carbon leakage will continue to be free allocation of UK ETS emissions allowances, which will be decreasing throughout the 2020s. The Government are considering the impacts of a net zero consistent cap trajectory and the most appropriate way to mitigate the risk of carbon leakage and adverse effects on UK industrial competitiveness as part of the review into free allocations.</p> <p>The Government promised to consult on carbon leakage mitigation by the end of the year. This will include whether measures such as product standards and a carbon border adjustment mechanism (CBAM) could be appropriate tools in the UK's policy mix.</p> <p>The 2021 ETS review included consulting on a net zero consistent emissions cap; reviewing the long-term role of free allowances; exploring expanding the scope of the scheme to cover more sectors of the economy and linking with other schemes internationally; and considering the case for a supply adjustment mechanism. The Government responded to a small number of proposals that required implementation via legislation ahead of the 2023 scheme year. A full response to the remaining proposals will be published at a later date, including on aligning the UK ETS cap with net zero. Proposals indicated there will be no reductions to industry's free allocations before 2026 at the earliest.</p>	<p>The UK Government has continued to help drive deep industrial decarbonisation through the UK ETS. We welcome commitments to ensure the UK ETS cap aligns with net zero, as well as plans to review the long-term role of free allowances and expanding the scheme to cover more sectors of the economy.</p> <p>The Government must now ensure these plans are fulfilled, and consultations promised by the end of the year must be brought forward.</p>
<p>Set the UK Emissions Trading Scheme (UK ETS) cap based on the pathway to the UK Net Zero target and consider expanding the scheme to include increased coverage of materials and sectors.</p>	<p>UK Emissions Trading Scheme (UK ETS) cap (limit on emissions) will be aligned with net zero by 2024. (Industrial Decarbonisation Strategy).</p> <p>The initial cap has been set 5% below the UK's notional share of the EU ETS for Phase IV to ensure long-term carbon reduction across industry.</p>	<p>The Government has indicated it intends to ensure the UK emissions trading scheme cap will be aligned with net zero by 2024. Whilst this is welcome, it must ensure it expands the scheme to include the increased coverage of materials and sectors.</p>
<p>Incorporate carbon accounting into National Planning Policy Frameworks to ensure net-zero is consistently included in all areas of national planning policy.</p>	<p>The Government has committed to review the NPPF to make sure it contributes to climate change mitigation and adaptation as fully as possible.</p>	<p>The Government has committed to review the NPPF to better integrate net zero, this must include consideration of whole life carbon, carbon accounting, and resource efficiency.</p>

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