

Towards Net Zero:

Challenges, opportunities,
and policy recommendations

Accelerating the property sector's
transition to net zero carbon.

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Disclaimer

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Foreword



Guy Grainger,

**President, British Property Federation,
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The growing momentum behind net zero carbon has led to significant commitments being made at global, country, and city levels. Now is the time for these pledges to be turned into meaningful action. Ambitious real estate business leaders, including BPF members, have already begun their journey by signing up to our Net Zero Pledge. However, decarbonisation must be enabled at a national level and backed by UK policy – a national commitment without policy is meaningless. The lack of incentives and regulation from Government is hindering progress. This report aims to set out an actionable set of policies which UK Government should take forward to enable the net zero carbon transition at the urgent pace that is needed.



Melanie Leech,

**Chief Executive, British
Property Federation**

Decarbonisation is the biggest challenge facing the planet and our industry. As the voice of the industry our role is to highlight the commitment and experiences of our members in tackling this challenge, and to articulate the barriers that exist to further progress. The BPF's Net Zero Pledge is a tangible demonstration of our commitment to show leadership and to bring our members together to collaborate and to share knowledge and experience. This collaboration has also enabled us to identify the key challenges and priorities faced by the property sector in the transition to net zero, and to develop a series of recommendations. The recommendations proposed in this report will help drive faster decarbonisation of our buildings and create the sustainable communities of the future, and we look forward to discussing them with the Government and decision makers.



Scope, boundaries and wider context

The British Property Federation (BPF) provides a voice for the UK real estate industry, including institutional investors and large commercial and residential property owners and managers. For this reason, the recommendations in this report are principally aimed at accelerating the decarbonisation of our larger residential and commercial buildings.

Supporting research

This report, findings and recommendations were supported by a survey and workshop aimed at identifying the key trends, challenges, and barriers to the decarbonisation of the built environment, and the role of policy in driving a net zero carbon transition. Participants included major property companies, including BPF members, in particular:

- 71 senior leaders from 45 organisations with UK operations, representing investors, developers, managers, owners and occupiers were surveyed. Respondents covered all major asset types including commercial and residential
- With the aim to further explore the views across the built environment, our research partners, JLL, hosted a workshop. The participants were predominately from large Real Estate Investment Trusts (REITs) and asset managers

Net zero carbon hierarchy

The report focusses on the individual stages of the net zero carbon hierarchy, excluding the last stage, carbon offsetting. Carbon offsetting is to be used as a last resort for emissions that are difficult to abate, therefore, the other stages of the hierarchy should be the focal point. There are also issues regarding transparency and regulation with the voluntary carbon market, which are being addressed by other entities.

There is an option to invest in reducing emissions from inefficient buildings (so-called brown assets) as a form of carbon offsetting. However, this is only possible if the emissions reductions from measures, such as energy efficiency interventions, are additional and not being claimed by any other party. Methods for this kind of emissions reduction offset are nascent and only being piloted at this stage.

Wider context

The current economic climate may create a challenging environment for organisations to invest in net zero carbon due to increasing levels of uncertainty. Inflation is at levels not seen since the 1970s,

exceeding 11% in November 2022, although the Bank of England predicts that this will fall by mid-2023.

Both the inflation and energy crisis are largely driven by the consequences of Russia's invasion of Ukraine, which has led to a disruption of global food and energy supply chains. While the UK is far less reliant on Russian gas (at approximately 4% compared to the EU's 40%) the UK market is closely tied to the EU's market and higher prices on the international market have had a knock-on effect in the UK. The overall effect is that the UK's energy security – its ability to obtain continuous energy supply at affordable prices – is affected. These dynamics are also encouraging companies to explore domestic, renewable energy sources.

It is acknowledged that these extenuating circumstances may have a significant impact on the ability of business to finance the necessary measures. However, we believe this should not detract from the urgency and necessity of decarbonising the property sector to achieve net zero carbon.



Contents

Executive summary	7		
Introduction	11		
Existing policy and guidance	12		
Challenges to net zero carbon uptake	14		
Data quality and access	14		
Financing the transition	15		
Lack of industry standardisation and regulatory uncertainty	15		
Lack of accessible technology	16		
Building up skills and supply chains	16		
Retrofitting existing buildings	17		
Planning	18		
Decarbonising the grid	18		
Summary	19		
Policy recommendations	20		
		Energy efficiency	21
		Recommendation: Prioritise measures to improve the energy efficiency of our homes and buildings	
		Recommendation: Adoption of operational building performance metric	24
		Onsite renewables	26
		Recommendation: Mandatory installation of PV and green roofs	
		Embodied carbon	28
		Recommendation: Regulate embodied carbon	
		Offsite renewables	31
		Recommendation: Strengthen green tariffs	
		Planning	32
		Recommendation: Support local planning authorities to enable the net zero transition	
		Data	33
		Recommendation: Mandate data sharing	
		Final remarks	37
		References	39
		Appendix	42



Executive summary

Buildings are essential for modern life, but the property industry is much broader than you might think. We contribute £107bn a year to the economy employing millions of people and we're pivotal to the UK's chances of achieving our net zero targets. With buildings accounting for around 25% of all UK greenhouse gas emissions, we have an essential part to play in helping the country achieve its target of a net zero economy by 2050. That's why we are working together to speed up efforts to tackle the climate crisis.

In a highly fragmented and diverse sector such as property, achieving net zero carbon is likely to differ considerably from business to business. Therefore, we must understand the common, pervasive drivers and challenges to net zero carbon. As part of our research, we surveyed representatives from 45 organisations to capture the current sector views.

The results highlighted the following challenges:

- Insufficient and inaccurate building performance data available to decision makers, particularly regarding occupier energy consumption
- A lack of regulatory and policy certainty
- The impact of technology on energy efficiency, and the return on investment for carbon reduction measures
- Skills and supply chain shortages
- The lack of grid capacity for renewable energy
- Barriers to decarbonisation caused by the planning system

Drawing on our research, international examples of best practice and policies already in place in the UK, a series of policy recommendations are proposed. These set out our priorities and we believe will contribute towards resolving the identified challenges in the property sector's transition to net zero carbon. The policies are structured to target each stage of the net zero carbon hierarchy and support organisations through the various stages of their decarbonisation pathways.





Proposed policies

	Commercial	Residential	High priority	Medium priority
 Increase uptake of energy efficiency measures:				
Develop and roll out a national retrofit programme, focused on carbon reduction measures, for both residential and commercial buildings	✓	✓	✓	
Confirm the detail of the planned changes to the MEES regulations and new EPC targets for both the domestic and non-domestic private rented sectors	✓	✓	✓	
Zero rate Value Added Tax (VAT) on all residential repairs and maintenance		✓	✓	
Reform the business rates system and the capital allowances system	✓			✓
Publish the results of the consultation on introducing a new policy framework for a performance-based energy rating system in large commercial and industrial buildings	✓		✓	
 Increase onsite renewables:				
Mandate the installation of PV panels on all new large commercial, residential and public buildings	✓	✓		✓
Mandate the installation of green roofs, if PV panels are not viable, on all new large commercial, residential and public buildings	✓	✓		✓
 Reporting on embodied carbon:				
Mandate the use and disclosure of Life Cycle Assessments (LCAs) in new developments and refurbishments	✓	✓	✓	
Set and review embodied carbon reduction targets, based on appropriate benchmarks, on a regular basis	✓	✓	✓	



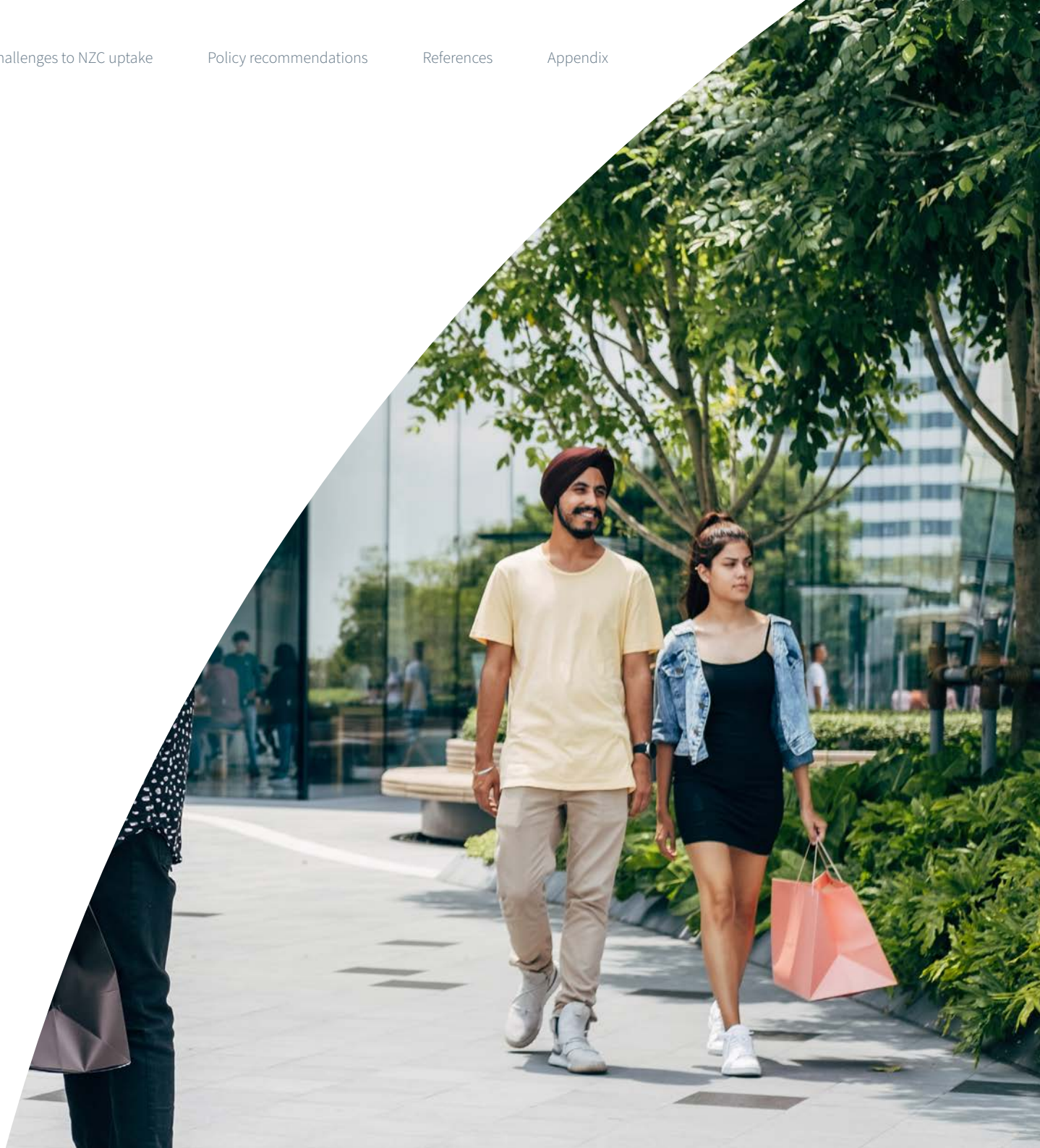
Proposed policies cont...

	Commercial	Residential	High priority	Medium priority
	Increase offsite renewables:			
Strengthen the criteria for a green tariff label	✓	✓		✓
Allow Real Estate Investment Trusts (REITs) to invest in offsite renewables	✓	✓		✓
	Support local planning authorities to enable the net zero transition:			
Work to ensure the planning system better supports the net zero carbon agenda, through the upcoming review of the National Planning Policy Framework	✓	✓	✓	
Build capacity and capability in local planning authorities to improve and speed-up the decision-making process	✓	✓		✓
	Increased data quality and availability:			
Mandate the sharing and disclosure of energy consumption data between property owners and occupiers of all large commercial buildings	✓		✓	
Mandate green leases for all commercial property, through the upcoming review of the Landlord and Tenant Act 1954	✓		✓	
Set up a task force to explore the challenges faced by property companies in the residential sector in accessing resident energy data		✓	✓	
Work to address data gaps at a national level, perhaps by setting up centralised data pools of building data from suppliers	✓	✓		✓



While the existing net zero carbon policy landscape and guidance in the UK has set the property sector on a trajectory towards carbon reduction, it is estimated that the pace of change and impact is not sufficient to achieve the 2050 goal. More targeted and relevant policy is needed to ensure the property sector, and the UK, can transition to net zero carbon within the planned timeline. So far, the sector has largely taken the lead, stepping up and setting its own action plan for achieving net zero carbon. It is now time for Government to follow suit and drive the sector to accomplish its 2050 ambition, leading the sector by effectively decarbonising the public building stock, for instance, through expanding the Public Sector Decarbonisation Scheme and adopting our recommended policies. This will continue to position the UK Government as global net zero carbon leaders.

“Existing net zero carbon policy is not sufficient to achieve the 2050 target”





Introduction

The climate crisis is arguably the defining challenge facing humanity this century. Extreme climate events are increasing at an alarming rate and current trajectories are predicting a global temperature increase of 3°C by 2050. The Intergovernmental Panel on Climate Change (IPCC) state that global greenhouse gas emissions (GHG) must be radically reduced to halve this temperature rise and the world should endeavour to limit warming to 1.5°C.

In 2019, the UK became the first major economy to set a legally binding target to achieve net zero carbon by 2050, with an interim target to reduce GHG emissions by 68% in 2030. Buildings account for around 25% of all UK GHG, and so we have an essential part to play in helping the country to achieve its target of a net zero economy by 2050. That's why we must work together to speed up efforts to tackle the climate crisis. The challenge of decarbonising the sector is monumental, with an estimated 80% of the UK's 2050 building stock already constructed.

Though emissions from property have decreased by approximately 30% over the last 20 years, predominately through improvements in energy

efficiency and grid decarbonisation, the pace is not fast enough to achieve the 1.5°C target.

“An estimated 80% of the UK's 2050 building stock is already constructed”

Momentum on net zero carbon has accelerated significantly due to the development of sector-specific net zero carbon guidance and the increase in the number of companies committing to act. The property sector is coalescing around a common understanding of net zero. Simply put, this is where an organisation removes as much carbon as it emits by reducing emissions and only offsetting unavoidable emissions. It is crucial to consider net zero carbon as part of 'whole life carbon', accounting for both embodied carbon from construction activities and operational carbon from the running of a building.

Leading organisations across the sector have been championing the net zero carbon transition, progressively implementing actions such as energy efficiency reduction measures, the purchasing of high-quality renewable energy, and embedding

circular economy principles into their developments to reduce embodied carbon. Real progress has been observed in recent years within the property sector, with 75% of our survey respondents committing to ambitious net zero carbon targets, often a decade ahead of the UK's 2050 target. However, the pace of change is simply not fast enough. We need to accelerate the transition to net zero and stronger Government action is critical. We need policies, incentives, interventions and guidance that will specifically enable the UK to close the gap between our current decarbonisation trajectory and achieving net zero carbon.

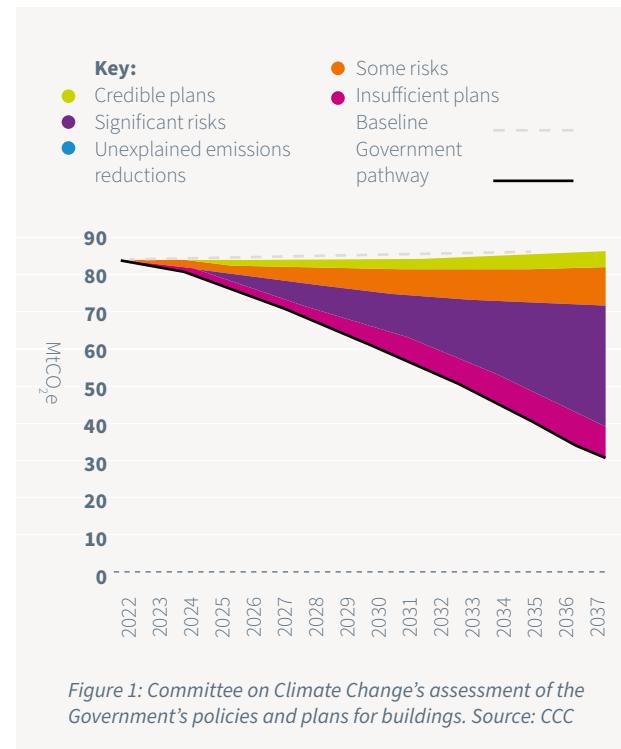


Existing policy and guidance

To achieve the 1.5 °C goal, well targeted policy and proportionate regulation is essential to encourage businesses to direct their efforts towards investment in the infrastructure, technology, and behavioural changes necessary.

The UK Government has set out a number of policies with one of the most notable being the introduction of mandatory climate-related risk and opportunities disclosure for large businesses and financial institutions. This is in alignment with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. The mandate came into force in April 2022, making the UK the first G20 country to enforce such legislation and has brought the direct financial impact of climate change to the forefront of investors' decision making. Other policies include the Future Homes and Future Building Standards, changes to the minimum energy efficiency standards (MEES) and the Energy Company Obligation (ECO), an energy efficiency scheme to ensure suppliers implement such measures and tackle fuel poverty. Table 1 in the Appendix outlines the current key policies implemented to encourage emissions reduction across the net zero carbon hierarchy.

We welcome these policies, but they are far from sufficient to drive measurable change to accelerate the UK's net zero transition, as highlighted in the Committee on Climate Change (CCC) 2022 progress report to Parliament (Figure 1).



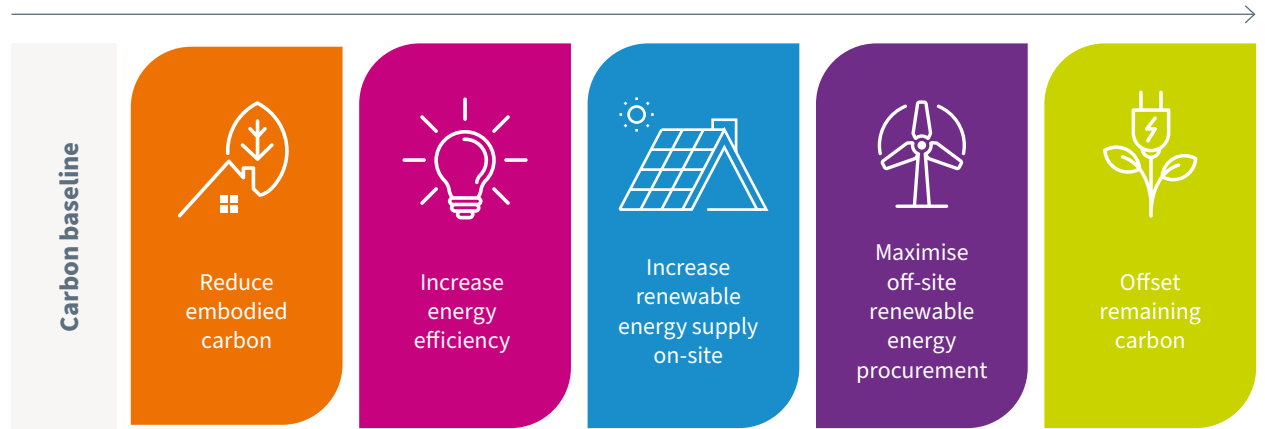
“90% of our survey respondents do not believe current Government policy will deliver a net zero property sector by 2050”

To fill the gap in Government policy, various industry bodies have produced property focused net zero carbon guidance. Primarily this guidance started by defining what net zero carbon for buildings means, with the UK Green Building Council's (UKGBC) Net Zero Carbon Buildings: A Framework Definition, and the steps needed to decarbonise building portfolios in the World Economic Forum's Green Building Principle. A key standard, the UK Net Zero Carbon Buildings Standard is currently in development and will set out essential benchmarks, targets and limits for operational and embodied carbon across 14 asset classes within the property sector. This report is the result of a collaborative effort of the property sector.

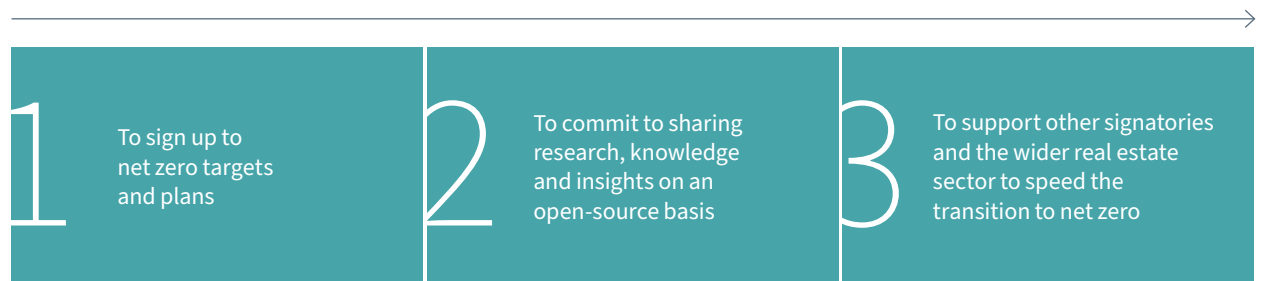
The net zero carbon hierarchy, endorsed by the World Green Building Council (WorldGBC) outlines actions that the property sector must pursue to be considered net zero carbon (Figure 2). It is this hierarchy of actions that separates net zero carbon from carbon neutrality. With net zero carbon, these steps should be exhausted before turning to carbon offsetting.

Additionally, there are various sector wide initiatives, commitments, and pledges which organisations are aligning with, including BPF's Net Zero Pledge.

Figure 2: Net zero carbon hierarchy



The BPF Net Zero Pledge commits BPF members to be net zero carbon by 2050 at the very latest. Becoming a signatory to the pledge requires three actions:





Challenges to net zero carbon uptake

The transition to net zero carbon is complex and countries, cities, and businesses around the world face a wide range of challenges. We partnered with property and sustainability experts JLL to understand the trends and best practice, and to identify the major challenges and actions that can help overcome these. The findings and recommendations highlighted throughout this report are based on desk-based research, a survey with major property organisations, and an industry-expert workshop.

“Access to data is one of the top challenges for the property sector”

Data quality and access

Accessing data is crucial for both property owners and occupiers targeting net zero carbon, but this is also one of the key challenges our sector faces. This point was highlighted in the survey as 50% of respondents named access to data as one of the top three challenges they face (Figure 3). Understanding the operational performance of a building is beneficial in many ways. Firstly, by identifying intervention measures, including energy efficiency or onsite PV generation, and secondly by reducing occupier overheads and improving occupier retention.

Completeness of data is fundamental to calculate an accurate carbon baseline and set realistic, informed net zero carbon targets and pathways. However, there is not a consistent and effective approach to sharing energy data. This means that both property owners and occupiers can find it difficult to access operational energy performance data from the other party. Even when data is shared, the data coverage is often insufficient to fully understand and contextualise the building performance.



Financing the transition

We recognise that the finance required to decarbonise the commercial property sector will largely come from the private sector. However, financial policies could support investors in balancing the return on investment with the return for the environment by incentivising investment in carbon reduction measures or penalising poor building performance. The data challenge feeds into the financial challenges as robust evidence on the return on investment and operational savings is vital to justify the additional capital expenditure to decision makers. This is especially important as net zero interventions, such as major energy efficiency upgrades and on-site renewable energy, demand a large upfront investment.

These challenges are likely to be exacerbated by the current economic climate of uncertainty and the potential global recession ahead. Financial incentives were identified as one of the most influential actions, alongside standards and regulations, that national and local Government can take to ease the transition to net zero carbon (Figure 4). Creating the environment in which property owners have the confidence to invest in net zero carbon is a key step to achieving and speeding up the transition.

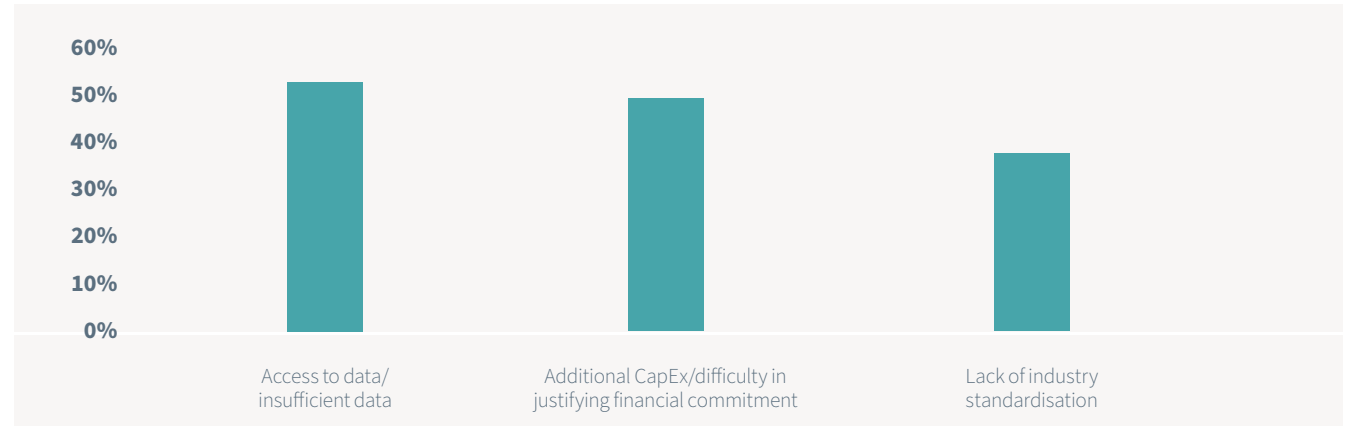


Figure 3: The top three challenges to a net zero carbon transition. Source: JLL/BPF survey

Lack of industry standardisation and regulatory uncertainty

Our sector has been hindered by a lack of standardisation on net zero carbon definitions and methods to decarbonise buildings. Cross-sector collaboration has produced a range of best practice guidance in response to this. However, ultimately only targeted regulation can direct the entire industry towards a consistent approach to tackling emissions. The Carbon Emissions (Buildings) Bill is one example of regulation that had broad industry support. By setting limits on the whole life carbon emissions of buildings, every construction site in the UK would be on a level playing field to invest in emission reductions. However, the Government does not support this Private Members Bill and, more generally, there remains a lack of policy and regulatory certainty and clarity on how the sector should transition to net zero.

The proposed expansion of MEES legislation for both the domestic and non-domestic private rented sectors have been consulted on, but the details and changes have not yet been approved and results from the latest consultations are yet to be published. Similarly, the Government has yet to set out its proposals on how we move to an in-use performance-based energy rating system for large commercial and industrial buildings. With the proposed deadlines for new Energy Performance Certificate (EPC) compliance getting ever closer, it is vital that Government acts fast to stabilise the market. In our survey, 6 in 10 respondents stated that lack of industry standardisation and the degree of regulatory uncertainty were one of the top three challenges that they determine the property sector face in the net zero carbon transition.



Lack of accessible technology

Technology has a significant role to play in accelerating the transition to net zero carbon through innovative solutions. For example, smart buildings now have the ability to collect real-time data on occupancy levels and adapt their heating and lighting systems to be more energy efficient. Connecting multiple smart buildings can also enable portfolio level decisions to be made. Technology and innovation also provide a direct impact on carbon reductions through new materials, such as green steel and low carbon concrete, and through Modern Methods of Construction (MMC) which result in better performance and lower carbon emissions.

Despite the rapid advancements in “prop tech”, we continue to observe a slow implementation of technology in both new builds and retrofits. Lack of buy-in, knowledge and awareness from asset managers and contractors coupled with the

required investment and risk that comes with the adoption of new, innovative technology, are the main barriers hindering the roll-out of pilots and portfolio wide systems.

Building up skills and supply chains

We employ millions of people of all ages across a huge range of roles, from the building managers to the designers and engineers transforming the fabric of our cities, supporting long-term local jobs and local economic growth. The net zero carbon transition presents a wealth of new opportunities to deliver systemic change that will not only drive technology and innovation through new products, services and processes, but will also generate new skills and knowledge across the sector. However, the lack of a coherent strategy on green skills has hindered the widespread roll out and adoption of new technology.

The Green Homes Grant voucher scheme, for example, failed to take account of the time required to train specialists in the installation of energy efficiency and the scheme was ended early. Since the closure of this scheme, the Environmental Audit Committee (EAC) have reported that Government policy is still not addressing the skills gap required to meet the net zero carbon targets.

The green skills shortage has a wider impact across supply chains. For instance, lead time for installing solar PV can be incredibly long as manufacturers struggle to adapt to the ever increasing demand for onsite renewables. This coupled with the shortage of skilled workers to complete installations is creating a significant barrier to carbon reductions. Costs will remain high whilst the skills and supply shortages exist which will further hinder net zero carbon investment.

Retrofitting existing buildings

We know that the greenest building is the one that already exists but the scale of the challenge we face in retrofitting existing buildings is immense. To meet global carbon emissions standards by 2050, we need to increase the rate at which we're repurposing our commercial building stock by at least 5% annually. For example, for offices in the UK to achieve the 59% reduction in energy use required to achieve the 2050 target, the pace needs to double from the level of the last ten years.

New builds are being prioritised to achieve operational carbon targets as this is easier than retrofitting existing buildings. The lack of focus on whole life carbon is further leading decision makers away from retrofits. 9 in 10 of our survey respondents agreed that it is crucial to set different targets for retrofits and new builds to overcome the difficulty of improving the operational efficiency of existing buildings to the same level as new builds. Increasing the focus on embodied carbon should be a priority to further encourage retrofitting over new builds, with 80% of our respondents believing that legislation around embodied carbon will further incentivise action on retrofit.

Although the most impactful retrofits focus on electrifying the building, this is a complex process which requires removing existing gas pipes and supply. Other measures such as solid wall insulation have not been widely implemented due in part to a lack of understanding around the building physics. Incorrect applications of wall insulation can cause damp, mould and air quality issues, further reducing trust from the sector. There are additional difficulties decarbonising heritage buildings whilst complying with current building and planning regulations, as compliant technologies can significantly increase the cost.

“89% of survey respondents believe the UK government should set different net zero carbon targets for retrofits and new builds”



Planning

The planning system has a significant impact on decarbonising the building stock, affecting both new construction and retrofit of existing buildings. Planning regulation operates at a local level, within the framework of the Government’s National Planning Policy Framework, and 75% of authorities have set their own net zero targets and plans. For example, London has a 2030 net zero carbon target whereas Manchester’s target is set for 2038. This has created a regional variance in regulation which has added to existing concerns around inconsistency in decision making at a local level. Furthermore, capacity challenges in planning authorities are becoming increasingly common, leading to delays and ultimately greater cost. Local authorities can have small retrofit departments which will become more in demand as more building owners seek permission to make energy efficiency improvements.

“75% of authorities have set their own net zero targets and plans”

Decarbonising the grid

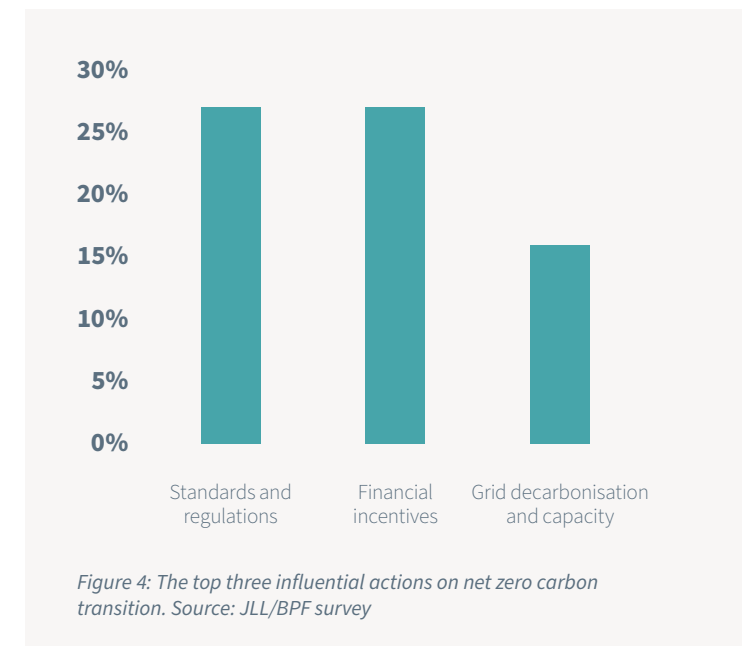
Reducing the carbon intensity of energy generation in the national electricity grid is fundamental to

achieving the UK 2050 target. According to our survey, grid decarbonisation and increasing grid capacity is the third most influential action the UK Government could take to drive the transition to net zero carbon (Figure 4).

“UK renewable electricity supply increased to 42% in 2020”

There are two key components to ensuring the UK’s energy is decarbonised: scaling the proportion of energy that comes from renewable sources and ensuring energy supply is electrified. Electrification is essential so that, when the renewable energy comes, the infrastructure is in place to receive it. Switching the electricity supply to renewable sources will not only reduce emissions but also secure the UK’s energy supply. Of the energy in the UK that is electrified, renewable electricity supply in the UK has been steadily increasing, reaching 42% in 2020 compared to 22% in the EU in the same year. The onsite renewables market is contributing to this figure and continues to grow with a 36% increase in PV capacity in 2021 from 2020. However, there are barriers preventing electrification and the renewable market from rapidly expanding. The financial incentive to generate surplus capacity and export it back to the grid has been greatly reduced, with the end of

Feed in Tariffs. When large electrification projects are proposed, additional capacity needs to be built. The Greater London Authority (GLA) have already issued warnings to developers in West London that there may not be the available electricity capacity to connect new homes. Currently, it can take up to two years for the connection to be made, affecting payback time. Despite efficiency improvements, the electrification of buildings and transport systems is beginning to put an increased pressure on the grid and the demand will only continue to grow over the next few decades.





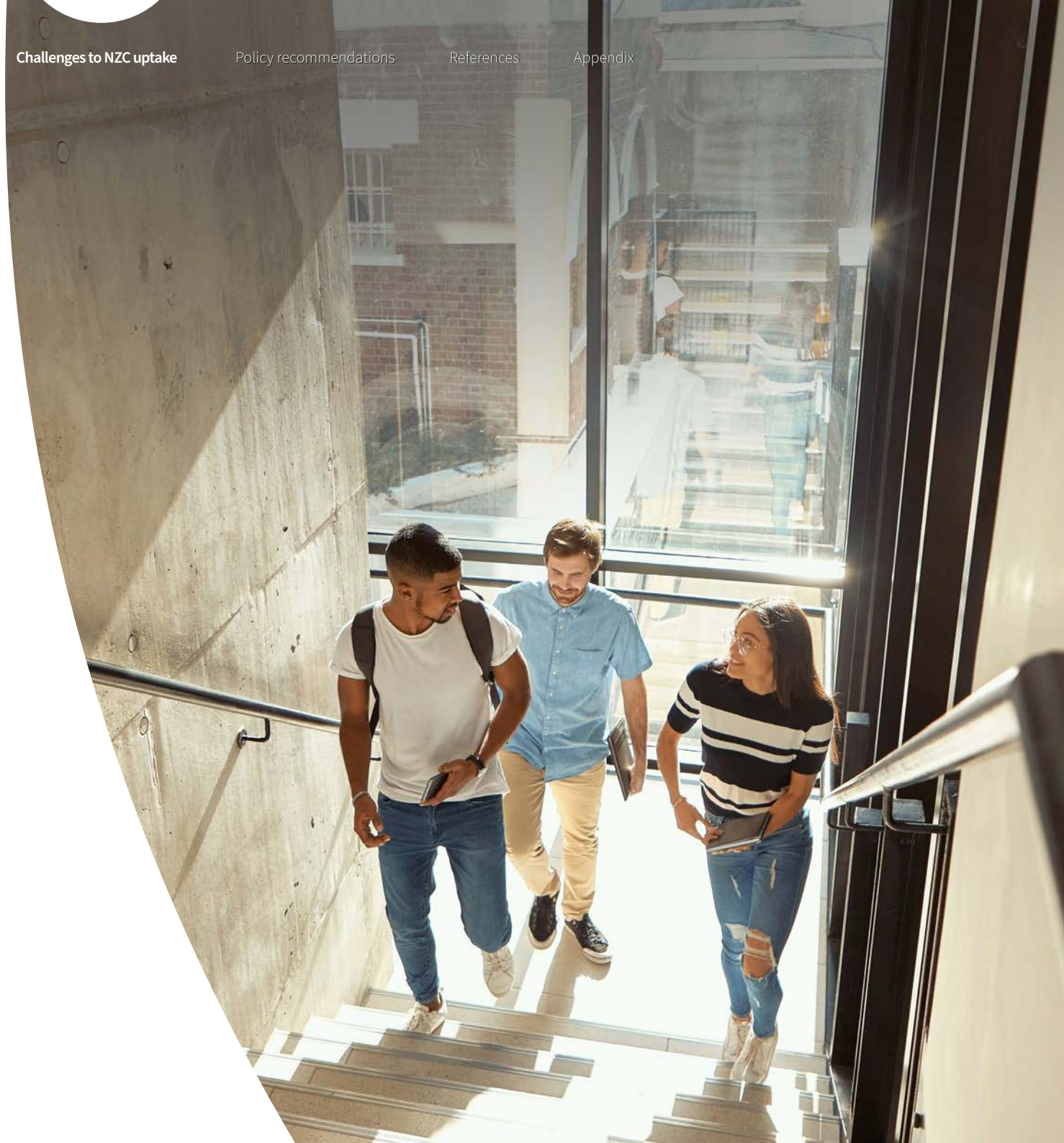
Summary

Targeted policy from Government is crucial to overcome a complex and interlinked range of challenges and enable a smooth transition to net zero carbon by 2050.

Based on our research, we believe that the key challenges and areas to focus policy on are:

1. Quality data for informed decision making
2. Targeted financial incentives to attract and accelerate investment into decarbonising our large residential and commercial buildings
3. Policy and regulatory certainty, including clarity on EPC targets and on how we move to a performance-based energy rating system
4. The development of additional green electricity through onsite and offsite renewables to decarbonise the grid.

We also need a supportive and enabling infrastructure to ensure that the above building-specific interventions can be delivered. This includes a fit-for-purpose national energy grid, a skilled workforce and investment in the planning system.





Policy recommendations

The successful transition to net zero carbon in the UK will depend on the ingenuity and determination of businesses, and the development of sector-specific policy. In many ways, the UK has been at the forefront of the net zero carbon transition, mainly due to becoming the first major economy to set a legally binding net zero target and with many UK industry bodies developing globally leading guidance. In addition, while we recognise that companies are in different places on their journey to net zero, many UK property companies are setting ambitious net zero carbon commitments that has led to a real understanding of portfolio emissions, enabling organisations to set tailored targets that will support the achievement of net zero carbon. Despite this commitment, however, policy and regulation will remain a critical driver and accelerator. Policies that encourage and support investment, while fostering an entrepreneurial environment, will be key to delivering the sector's net zero ambitions.

It is important to note the substantial challenge of decarbonising privately owned residential homes. The current economic crisis and lack of financial incentives, together with the significant investment required, is resulting in too few home-owners implementing measures such as improving the energy efficiency of their buildings. The Government has a critical role to play in supporting home-owners and needs to act to relieve the pressures facing those in the residential sector, to ensure that the UK meets the net zero carbon target.

This section outlines the proposed policy solutions and draws on how other countries have successfully implemented similar measures.





Energy efficiency Recommendation:



Prioritise measures to improve the energy efficiency of our homes and buildings

“By 2030 the UK aims to reduce energy consumption from buildings and industry by 15%”

Cost is a significant barrier to implementing energy efficiency measures, so it is vital that policy measures are in place to help overcome this. Changes to the tax system could help mitigate some of the costs associated with the installation of energy saving measures and encourage property owners and investors to bring forward investment into large-scale retrofit programmes. In addition, financial incentives are required to get people working within the energy efficiency installation market to address the skills shortage affecting the delivery of projects.

In the Autumn Statement, published 17th November 2022, the Chancellor pledged £6 billion towards home insulation in addition to the £6.6bn already promised for energy efficiency savings. However, this is to start in 2025 and there is little clarity on how the money will be spent. Many in the industry are questioning whether this is ambitious enough and if the Government can afford to wait until 2025 to provide more funding to help tackle the poor energy efficiency of the UK's housing stock. The Chancellor also announced the creation of an Energy Efficiency Taskforce to drive progress and achieve the new target to reduce the UK's energy consumption from buildings and industry by 15% by 2030.

Policy information and implementation

Government should develop and roll out a national retrofit programme, focused on carbon reduction measures, for both residential and commercial buildings. This should include additional grants for low-income households and social housing projects and funding for training and upskilling programmes to help build the pipeline of skilled workers across the supply chain.

Government should confirm the detail of the planned changes to the MEES regulations and new EPC targets for both the domestic and non-domestic private rented sectors to provide policy and regulatory certainty. This is now time-critical if the sector is to deliver against the proposed changes and targets. The treatment of Purpose-Built Student Accommodation (PBSA) within the regulations, and the scope for rationalising the treatment of PBSA, should also be reviewed.

Zero rate Value Added Tax (VAT) on all residential repairs and maintenance. The zero rate VAT should apply at the very least to energy efficiency materials and products, such as electric boilers, heat pumps, insulation and double glazing. However, we

would advocate for full zero rating on all repairs and maintenance to put it on a par with new build works. Furthermore, to achieve the full potential for this policy, Government should support the upskilling of local builders to perform sustainability and energy efficiency improvement works. Research from The Federation of Master Builders concludes that a VAT cut on home improvements would stimulate the UK economy, generating an estimated £15.1bn and creating approximately 95,480 additional jobs.

Reform business rates and the capital allowances system. To encourage investment in large scale commercial retrofit projects, including the most inefficient and hard-to-treat buildings, Government should reform the capital allowances system to better support and encourage long-term investment into carbon reduction and energy efficiency measures. We have previously called for an alternative form of relief for capital expenditure on “green” projects using a repayable tax credit system, as already applies to R&D costs. This is to ensure that business get tax relief more quickly after making the investment. Furthermore, it is important to make sure that the business rates system does not act as a barrier to investment by hiking up bills straight after investment has been made and before the business has received any payback from that investment. The business

rates system could even be used to incentivise and reward investment in energy efficiency measures by using EPC or an operational building performance metric as an indicator. The more efficient the EPC rating or operational building performance metric, the lower the rate charged.

“VAT cuts could generate £15.1bn and 95,480 jobs”





Best practice in action

The Netherlands tax Incentive

The Netherlands financially rewards companies that invest in energy saving installations or that use renewable energy by allowing 45% of the invested amount to be deducted from the taxable profits that year. This policy also applies to individuals who can make the deduction from their personal income tax. The minimum investment currently eligible is €2,500 and the maximum is €126m. A dynamic list of technologies that are eligible enables policy makers to focus the scheme and adapt to latest technological developments.

Italy's superbonus 110% scheme

Italy have launched the Superbonus 110% tax credit to improve the energy efficiency of the country's building stock. Owners can use the tax credit to install heat pumps, solar panels, thermal insulation and replace old boilers. It is applicable to existing single and multi-unit properties and owners must demonstrate the effectiveness of the implemented energy efficiency measures by increasing their EPC by at least two classes. The owners reclaim the cost of the energy efficiency upgrades by subtracting it from their tax returns over a five-year period.

The scheme was launched in July 2020 and to date the Italian Government has paid out an estimated £17.5bn for these home improvements with over 122,000 applications approved.

“Manchester has committed to becoming a zero carbon city by 2038”

Manchester's low carbon academy

Manchester has committed to becoming a zero carbon city by 2038 as part of its goal to be a healthy, green, socially just city. Greater Manchester Combined Authority partnered with Manchester College, Oldham College, Retrofit Academy and Fabric CIC to set up the Low Carbon Academy in 2013. The Low Carbon Academy sits within the North West Skills Academy as the retrofit training arm. The courses on offer include retrofit installation, heat pump installation, solar thermal installation, and sustainable construction skills. For SMEs and Greater Manchester residents, the courses are fully funded by Government. To date, over 1,000 businesses and 2,200 individuals have been supported through the academy.

Energy efficiency

Recommendation:



Adoption of operational building performance metric

Although EPCs are helpful to showcase the potential performance of a building, research suggests there is little correlation between EPC ratings and actual energy performance, which may vary significantly, for example depending on the quality of installations or occupancy. There are many instances where buildings with EPC A ratings have incredibly high energy intensities.

Operational building performance metrics are becoming increasingly popular to achieve a more accurate understanding of actual energy performance. Making both occupiers and owners aware of their role in the building's energy consumption should also open discussions for collaborative and informed problem solving. This is why a number of businesses within the property industry are already adopting performance-based energy rating systems, such as NABERS UK, on a voluntary basis.

Policy information and implementation

Government should publish the results of its consultation on introducing a new policy framework for performance-based energy ratings in large commercial and industrial buildings. This should include details of the metric that will be used to determine operational energy efficiency.

The Government should continue to work with the sector on piloting and implementing the new framework and should ensure that existing high-quality schemes, such as NABERS UK, are either compatible with the new framework or recognised as alternative routes to compliance. An independent body, that has industry support, should oversee the methodology and accredit assessors to calculate the metric.

This policy has the potential to be extended in a variety of ways. Targets for energy intensity across asset classes could be introduced and financial incentives could be tied to the metric. In the future, publicly reporting the results could be mandated.



Best practice in action

Australia's NABERS scheme

10% of Australia's GHG emissions are attributed to the commercial building sector. The Building Energy Efficiency Disclosure Act was passed into law to mandate the disclosure of the energy efficiency of commercial offices over 1,000m² at sale, lease or sub-lease. Building Energy Efficiency Certificates (BEECs) are compiled by a qualified assessor and are valid for a year. BEECs must be publicly accessible on the Building Energy Efficiency Register and there

are large fines in place for non-compliance. The most important part of the BEEC is the NABERS star rating which must be included in all marketing material. The NABERS star rating conveys the energy efficiency that is based on actual energy consumption. Despite there being no legal minimum NABERS rating, the Australian market has driven a massive improvement in energy efficiency due to the scheme. Buildings with a higher NABERS rating are distinguished as having a higher monetary value. It is estimated that \$1bn (AUD) in energy savings have been achieved (on average 42%) and 7 million tonnes of CO₂ emissions saved (average of 53%) since NABERS launched. Currently 78% of Australia's office space has a NABERS rating. The Commercial Building Disclosure program offers targeted information to building owners and tenants on improving energy efficiency. NABERS Energy for Offices has recently launched in the UK.

“An estimated \$1bn (AUD) in energy savings has been achieved since NABERS launched in Australia ”



Onsite renewables

Recommendation:



Mandatory installation of PV and green roofs

“Government should review upcoming policies to ensure that they are not actively disincentivising the uptake of PV”

Under the Future Homes and Building Standards, new builds will be required to include carbon reduction measures such as PV. Standards such as the UKGBC’s Net Zero Carbon Buildings Framework are promoting a fabric-first approach in line with the net zero carbon hierarchy. To encourage uptake of PV on existing buildings, Government should review the current incentive structure. Increasing the value gained from selling excess energy into the grid will stimulate a rapid increase in renewable energy generation as the return on investment can be clearly demonstrated. In addition, Government should review upcoming policies to ensure that they are not actively disincentivising the uptake of PV. A prime example is the recently announced Electricity Generator Levy, effective from 1st January 2023. The levy is set at 45% and will apply to renewables, such as wind and solar, generating over 100GWh per year. This could disincentivise organisations looking to invest in wind and solar. If PV is not viable, it should be explored whether a green roof is feasible. A green roof has plants and vegetation covering all, or part of, the surface. Green roofs are increasingly being showcased as a nature-based solution for dealing with rising temperatures and decline in biodiversity.

Policy information and implementation

Government should mandate the installation of PV panels on all new large commercial, residential and public buildings. Government should work with industry on the details of the plan and a feasibility study should be undertaken to consider the potential energy generation efficiency and structural concerns. Government should also address the inconsistent planning decisions and regulations to ensure there is no conflict in policies and allow for ease of implementation.

Government should mandate the installation of green roofs, if PV panels are not viable, on all new large commercial, residential and public buildings. Pilot projects such as bus stops and public buildings could give credibility to the policy before it becomes mandatory.

Best practice in action

French mandatory PV coverage

France has introduced mandatory PV coverage on specific building types. New warehouses, supermarkets and parking lot shade structures will need to have at least 30% of their surface covered with PV. This policy forms part of the Multi-Year Energy Program that is aiming to achieve an installation rate of more than 3GW a year by 2025. The programme has sent a clear signal to investors and encourages more traditional industries to consider decarbonisation.

To financially incentivise implementation of renewable energy, France has introduced a fee-exemption for self-consumption. “Prosumers” with installations up to 1MW which feed into the grid and installations up to 240 GW, which are fully consumed on site, benefit from this.

Basel’s no roofs unused policy

Basel, Switzerland, was the first city to legally mandate green roofs for all flat roofs in new and existing buildings. Initially, 5% of energy bills in the city were put into the Energy Saving Fund to fund energy saving campaigns and measures. Along with the obligation to convert the roofs, the fund was deemed enough to encourage widespread implementation.

The 2002 amendment to the City of Basel’s Building and Construction Law includes the following criteria for green roofs:

- The growing medium should be native regional soils. The regulation recommends consulting a horticulturalist
- The growing medium should be at least 12 cm deep
- Mounds 30cm high and 3m wide should be provided as habitat for invertebrates
- Vegetation should be a mix of native plant species that are characteristic to Basel

Green roofs on flat roofs over 1,000 m² must involve consultation with the city’s green roof expert during design and construction.

Utrecht’s green and PV bus stops

Building on a successful project of greening and installing PV on the roofs of bus stops, the city of Utrecht is extending the scheme to cover all buildings in the district, with the ultimate aim of increasing biodiversity. A grant scheme to cover 50% of the costs for homeowners up to a maximum of €20,000 per application is set to be put in place.





Embodied carbon

Recommendation:



Regulate embodied carbon

Measures to reduce embodied carbon, such as the introduction of sustainable design guidelines, may streamline design decision-making but fail to deliver the scale of change we need. Such embodied carbon approaches may also not lead to measurable performance outcomes. To enable more informed decision making, whole building Life Cycle Assessments (LCA) should be considered in collaboration with the design guidelines. These LCAs determine the potential environmental impacts during the lifecycle of products and services using systematic analysis and result in a quantifiable method. This facilitates informed design and construction decisions.

LCAs are globally accepted, and international standards have been developed to establish uniform comparison. In the UK, The Royal Institution of Chartered Surveyors (RICS) have created guidance on LCA method for the construction industry.

The use of whole building LCAs highlight the importance of including embodied carbon not just operational carbon in all decisions.



For example, when using a whole building LCA, an organisation will more seriously consider retrofit over new build, once embodied carbon is considered. This is because a vast proportion of a building's emissions come from the embodied carbon of the construction materials. This further emphasises the importance and necessity of a UK national retrofit program.

Raising awareness on embodied carbon is vital, a point which has been stressed by the Environmental Audit Committee (EAC) of the UK Parliament. The EAC has challenged the lack of Government incentives or policy drivers to ensure reduction of embodied carbon throughout the property sector and has published a series of recommendations to Government. These include mandating LCAs and their disclosure and using the results to implement regulation enforcing ambitious embodied carbon limits.

The Government's response (September 2022) did not provide clarity on which of the EAC's recommendations were going to be actioned and lacked the sense of urgency which is essential to achieve the UK's 2050 net zero carbon target. However, we welcome the commitment from the Government to consult in 2023 on how it will approach the measurement and reduction of embodied carbon in the built environment.

Policy information and implementation: LCAs

Government should mandate the use and disclosure of LCAs in new developments and refurbishments. The policy should be first enforced for large buildings and building projects, and then rolled out more widely. **Embodied carbon reduction targets, based on appropriate benchmarks, should be set by the Government, and reviewed on a regular basis.**

To ensure the new requirements are applied consistently across the country, and interpreted in the same way by planning authorities, these should be set out in building regulations and reflected in the planning system through national planning policy.

“80% of survey respondents want legislation around embodied carbon to further incentivise decarbonisation”





Best practice in action

The Netherland's building decree

The Building Decree (Bouwbesluit) was expanded in 2018 to introduce limits on building embodied carbon emissions. The Decree dictates that all new residential and office buildings greater than 100 m² are obligated to conduct an LCA using the national method. The LCA calculation creates a monetary value on the mandatory impact categories (embodied carbon and health impacts) to produce an absolute cost of the construction, or shadow cost, expressed in €/m². As of 2018, the cap has been placed on this shadow cost at € 1/m²/year.

There are a few exemptions to the Decree: monuments, offices with limited floor area and those qualifying for the hardship clause. Other than that, non-compliance is severe.

“City of Vancouver’s goal is to reduce embodied carbon emissions by 40% by 2030”

City of Vancouver’s embodied carbon targets

The City of Vancouver has implemented an ambitious target to reduce embodied carbon emissions by 40% by 2030, compared to 2018 levels. As part of rezoning submissions, all development projects over 600 m² in size, are required to conduct and disclose a whole building LCA. To implement these policies, the city first established a standardised baseline from 2018 using average carbon intensities that had been reported and monitored.

The strict policy has catalysed innovation in new construction materials and the upskilling of builders and developers. The city has provided incentives for upskilling through subsidising Passive House trades training, social events, and appointed funding for the online Pathfinder tool. The efforts have supported those in the relevant industries to access training and peer networks whose focal point is the transition to net zero carbon buildings.



Offsite renewables

Recommendation:



Strengthen green tariffs

Businesses are recognising the value of procuring renewable energy to reduce their carbon footprint with many already paying a premium for energy marketed as green. To label renewable energy procurement as a green tariff, the energy supplier matches all or some of the electricity with renewable energy fed back into the grid. The energy supplier must own the Renewable Energy Guarantees of Origin (REGO) certificate but does not have to bundle the certificate with the renewable energy itself. This means that the actual supply to the building is highly likely to contain fossil fuel generated electricity.

Concerns over Government support for renewable generation has the potential to drastically slow down the progress made towards decarbonising the grid. The private sector needs clear guidance and support from the Government on the direction of the market for the demand to continue growing and the quality of the renewable generation to improve.

“REGOs do not guarantee 100% renewable energy supply”

Policy information and implementation

Government should strengthen the criteria for a green tariff label. Tariffs labelled as “green” should consist of the energy attribute (REGO) and the renewable energy itself bundled together. The supplier can only provide 100% renewable energy tariffs. It is also important that the supplier is working on providing additionality in the future. Additionality is when the supplier contributes to the production of new renewable energy generation sites.

Government should allow Real Estate Investment Trusts (REITs) to invest in offsite renewables.

Broadening the asset classes that REITs can invest in to include renewable energy generation infrastructure will unlock finance for additionality and support the decarbonisation of the grid.

Planning

Recommendation:



Support local planning authorities to enable the net zero transition

Current planning policy and local authority capacity does not support the transition to net zero carbon. Planning constraints may block the retrofitting of some of UK's building stock, particularly heritage buildings which accounts for approximately 4.5%. Adapting current planning regulations to consider the impact on the net zero carbon target will help create the change that is required to decarbonise the building stock. In addition, investment in local planning authorities would increase their capacity and capabilities, while training on specific technologies, such as low carbon heat and insulation, will prepare the authorities to handle complex planning decisions.

“Approximately 4.5% of UK's building stock are heritage buildings. Retrofitting of these properties may be blocked by planning constraints”

Policy information and implementation

Government should work to ensure the planning system better supports the net zero carbon agenda, and the upcoming review of the National Planning Policy Framework provides an opportunity to deliver this. A particular focus needs to be on how we ensure that the planning system is not a barrier to retrofitting our listed and heritage buildings.

Additional investment in the capacity and capability of local planning authorities will also be essential to improve and speed-up the decision-making process and ensure that authorities are prepared for the additional work that the transition to a net zero property sector will generate. Training on specific technologies such as low carbon heat and insulation will prepare the authorities to handle complex planning decisions.

Data

Recommendation:



Mandate data sharing

“Access to data, particularly energy consumption data, is a major challenge for both property owners and occupiers”

Asset-level data

Data is crucial to delivering net zero buildings. Without access to robust and timely data on energy performance, property investors and companies cannot understand their buildings’ baseline emissions, set realistic targets, and accurately measure and report on progress. This is why a lack of access to data, typically energy consumption data, was identified as one of the top challenges in the transition to net zero carbon.

This is not just a challenge for property owners. Property occupiers also need access to energy data. Many occupiers have their own sustainability targets and ambitions, particularly large commercial organisations who increasingly have their own corporate net zero carbon commitments, and collaboration with the property owner can help to reduce their own carbon footprint.

In the absence of any national requirement to share or disclose building energy data, an increasing number

of commercial property companies have looked to address these data challenges through the adoption of green leases.

This is a standard lease form with clauses that require data sharing and that encompass the improvements and management of the environmental performance of buildings, by both the occupier and owner. Despite growing in popularity in recent years, there are still many commercial properties where green leases are not in place or where green leases are simply not working.

To help with the introduction of green leases, the Better Buildings Partnership (BBP) have developed a ‘Green Lease Toolkit’ for commercial property owners. However, access to data is equally a challenge in the residential sector for those property companies who invest in residential real estate, such as build-to-rent assets. Indeed, there are additional complexities in the residential sector related to GDPR and access to residents’ private energy data.



Residential Data

Our BPF Residential ESG Experience & Sentiment Survey showed that access and completeness of data is often an even greater challenge within the residential sector, where there are issues over accessing tenant data effectively and legitimately especially in the developments where there are no shared utilities. There is also a clear lack of standardisation of data, making it difficult to assess metrics and act.

Sector-level data

Data challenges are not just limited to individual companies or buildings but are a sector-wide problem. The Committee on Climate Change noted in its most recent progress report that reliable data in the property sector is limited and is hindering the Government's ability to develop, target and implement policy. One solution may be the formation of data pools where anonymised data can be taken from numerous organisations and stored, and where multiple data sets can be aggregated and evaluated. Data pools can promote transparency, data assurance and a greater understanding of carbon intensive hotspots within the property sector.

For data pools to become a reality, standardisation is key. Consistent metrics are needed to enable

comparison across the industry, and to promote transparency. The sector needs to collaborate upon common industry metrics, such as, intensity and absolute carbon, with defined scope and boundaries. If achieved, data pools can support future policy.

A good example of this in the UK is the National Energy Efficiency Data Framework (NEED). This was developed to create a UK-specific database to garner a greater understanding of energy efficiency and energy use in domestic and non-domestic buildings. The framework uses data collected from various sources, including Government statistics and ECO. However, this framework is not able to provide timely data and greater temporal granularity due to the labour-intensive nature of these demands. This limits the framework's ability to provide robust data and influence policy.

Policy information and implementation:

Government should mandate the sharing and disclosure of energy consumption data between property owners and occupiers of all large commercial buildings. Government should work with the sector on the scope and detail.

Government should mandate green leases for all commercial property. The review of the 1954 Landlord and Tenant Act is an opportunity to include

such a mandate. There is also scope to include provisions on water, waste and biodiversity.

Government should set up a task force to explore the particular challenges faced by property companies in the residential sector in accessing resident energy data. This could be part of the remit of the recently announced Energy Efficiency Taskforce.

Government should work to address data gaps at a national level, perhaps by setting up centralised anonymous data pools of building data from suppliers. This transparency is necessary for improved data collection quality and understanding of where the property sector is most carbon intensive.



Best practice in action

Décret Tertiaire, France

Décret Tertiaire mandates energy consumption reduction in all French tertiary sector buildings (i.e., retail, data centres, health, education etc.) or buildings over 1,000 m². The targets are 40% reduction by 2030, 50% reduction by 2040 and 60% reduction by 2050. To validate energy reductions, the energy consumption data must be disclosed annually to the digital platform OPERAT, maintained by the French Environment & Energy Management Agency. Both the occupier and the property owner must collaborate to disclose the data.

Aside from the emissions reductions, this policy helps solve the challenges presented by a lack of access and insufficient data. For the relevant individuals to disclose energy consumption data, an advanced data management system must first be put in place to actively track energy consumption. In addition, there must be effective communication between the relevant stakeholders (e.g., energy management departments, operations management departments) and no barriers to accessing the data.

Failure to adhere to the data disclosure requirement first results in a formal notice to provide the data within three months. Meanwhile, the penalties for non-compliance are severe, up to €7,500 per non-

compliant building. The French Government has also adopted a ‘Name and Shame’ method and will publish all non-compliant companies/persons on a non-compliance site list.

Canadian open access data

The National Energy Use Database was launched to understand the energy consumption at end-use level across Canada. The data is freely available and is accessible for anyone to use. The data is aggregated and reports with the subsequent energy efficiency trends across Canada are published annually. The end use energy characteristics are used to inform evidence-based policy decisions and assist Canada’s efforts in climate change mitigation. For example, The Office of Energy Efficiency derived that Canada’s energy efficiency improved by 30.6% from 1990 to 2017 due to the energy efficiency measures implemented.

The UK has the National Energy Efficiency Data Framework (NEED). However, the data sets are not as comprehensive as Canada’s and do not provide energy data across differing sectors.



Best practice in action

New York city's energy aligned clause

Currently, commercial leases in New York City incorporate a clause that permits the property owner to recover the cost of energy efficiency measures. However, this is usually contingent on the useful lifespan of the retrofit. This timeline has proven to be too lengthy to incite property owners to implement the efficiency measures.

Therefore, a working group has developed the Energy Aligned Clause. The clause states that owners will recoup 80% of predicted energy savings annually from the occupiers. The predictions of savings are developed by an energy specialist who is agreed upon by both parties. The outstanding 20% of predicted savings are assigned to the occupier to act as a buffer in the event of retrofit underperformance. Subsequently, the property owners recoup timeline is extended by 25%.

There are many benefits associated with the Energy Aligned Clause. Firstly, the lease language is standardised and easy to use. This reduces the burden and transaction costs that may accumulate between the parties as no negotiation is required to implement a new green lease. Secondly, occupiers instantly start recouping the 20% proportion of the energy savings and once the retrofit costs are paid off, they profit from the whole savings. The occupiers are also protected from underperforming retrofits through only paying 80%. Conversely, the property owners start recovering expenses immediately and will still profit from the energy efficiency measures when the lease expires due to the lower base building costs. To ensure uptake, the installation of meters and sub-meters will be a requirement for commercial tenant spaces by 2025.

“...occupiers instantly start recouping the 20% proportion of the energy savings and once the retrofit costs are paid off, they profit from the whole savings”





Final remarks

There has been considerable progress in the UK property sector's transition to net zero carbon but as this report makes clear there are significant challenges to overcome if we are to deliver a net zero built environment by 2050.

The sector is ready to work with Government to help design and implement the right policy and regulatory framework to speed up the decarbonisation of our homes and buildings.

The research findings and recommendations in this report reflect the real-world experiences of BPF members and the property industry. To date, the sector has led the drive towards a net zero carbon future. It is now time for the Government to deliver the plans and policies that will enable the industry to complete the transition and deliver on its net zero ambitions.

Acronyms

BBP: Better Buildings Partnership

BEECs: Building Energy Efficiency Certificates

BPF: British Property Federation

CHP: Combined Heat and Power

CIBSE: Chartered Institution of Building Services Engineers

CRREM: Carbon Risk Real Estate Monitor

EAC: Environmental Audit Committee

ECO: Energy Company Obligation

EPCs: Energy Performance Certificates

ESO: The National Grid Electricity System Operator

EV: Electric Vehicle

GHG: Greenhouse Gases

GLA: Greater London Authority

IPCC: International Panel on Climate Change

LCA: Life Cycle Assessment

LETI: The Low Energy Transformation Initiative

MEES: Minimum Energy Efficiency Standard

MMC: Modern Methods of Construction

NEED: National Energy Efficiency Data-Framework

PPAs: Power Purchase Agreements

PV: Photovoltaics

REGO: Renewable Energy Guarantees of Origin

REITs: Real Estate Investment Trusts

RIBA: Royal Institute of British Architects

RICS: Royal Institution of Chartered Surveyors

SECR: Streamlined Energy and Carbon Reporting

TCFD: The Task Force on Climate-related Financial Disclosures

UK: The United Kingdom

UKGBC: UK Green Building Council

VAT: Value Added Tax



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Appendix



Table 1. Current net zero carbon policies and guidance in the UK

Stage of net zero carbon hierarchy

Stage of net zero carbon hierarchy	Existing policy	Existing guidance
Reduce embodied carbon	<ul style="list-style-type: none"> • National Planning Policy Framework includes net zero carbon guidance and recommends that new developments reduce greenhouse gas emissions through their design. • London Plan provides a development framework for the city. Major new developments should be net zero carbon, and all residential car parking spaces must provide infrastructure for electric or ultra-low emission vehicles. Circular economy principles are also promoted, with 95% of construction/ demolition waste to be recycled, reused, or recovered. Developments are also mandated to keep heating and hot water generation fossil fuel free. • Ban on new diesel and petrol cars by 2030 and all cars fully zero emissions by 2035 will influence real estate as demand for EV vehicles and infrastructure grows. This will also reduce carbon from transport in construction and operations. 	<ul style="list-style-type: none"> • WGBC’s Bringing Embodied Carbon Upfront report recommended following a hierarchy of prevent, reduce and optimise, plan for future, and offset. • The UKGBC’s Net Zero Carbon Buildings: A Framework Definition report has guidance across the net zero carbon hierarchy and recommends undertaking a whole life carbon assessment and disclosing for all construction projects to drive carbon reductions. • Royal Institute of British Architects (RIBA) 2030 Climate Challenge targets embodied carbon to be reduced by at least 40% from the current baseline. New build offices < 750 kgCO₂e/m² and residential < 625 kgCO₂e/m². • LETI’s Climate Emergency Design Guide targets non-domestic < 350 kgCO₂e/m² and residential < 300 kgCO₂e/m² by 2030.



Stage of net zero carbon hierarchy

Increase energy efficiency

Existing policy

- **MEES** will be extended to further improve EPCs. From 2018, privately rented commercial buildings across the UK had to achieve a band E or above. This will be increased to B by 2030 (England & Wales) with a 2027 interim target of C. Privately rented homes will be required to have an EPC of C or above by 2028. The requirement for all homes to be band C or above will follow in 2035.
- No new gas boilers are to be sold by 2030. The **Boiler Upgrade Scheme** will offer £5,000 grants to homes switching to an air source heat pump and £6,000 grants for ground source heat pumps. Phase out the installation of new natural gas boilers from 2035.
- £60 million **Heat Pump Ready Programme** is underway to ensure 600,000 hydronic heat pumps are installed in homes by 2028. Ambition to achieve cost parity with boilers by 2030. **The Heat Network (Metering and Billing) Regulations** has created the first database of UK heat networks and placed duties on heat suppliers to work to implement more efficient heating systems through metering and billing based on consumption.
- **Future Homes Standard** is being developed to amend Part F (ventilation) and Part L of the Building Regulations. The amendment mandates that new homes built from 2025 will produce 75-80% less carbon emissions than those built to current energy efficiency requirements. In addition to this, higher fabric efficiencies are required and a ban on traditional fossil fuel heating systems is mandated. A transitional agreement is being developed to ensure planning permission on the development of new homes that contradict the standard is not passed before the standard takes effect.
- **Future Buildings Standard** is being developed alongside the Future Homes Standard to impose limits on energy demand.
- **Energy Savings Opportunity Scheme (ESOS)** applies to large corporations and stipulates the undertaking of energy audits and identification of cost-effective energy saving measures for their buildings and processes. ESOS currently runs on a four-year cycle.
- **SECR** mandates qualifying businesses to disclose their energy and carbon emissions publicly in their annual reports.

Existing guidance

- The UKGBC have published **Energy Performance Targets for Offices** that includes energy intensity interim and “Paris-proof” targets for policy makers, designers and portfolio owners. The 2030-2050 whole building energy target is 70 kWh/m² (NLA)/yr.
- LETI’s **Climate Emergency Design Guide** goes into detail on targets for U values, efficiency measures and window area for different asset types. Offices 55 kWh/m²/y and residential 35 kWh/m²/y.
- **Carbon Risk Real Estate Monitor (CRREM)** is a global tool which models how a portfolio compares to the energy intensity pathways for 1.5°C and 2°C degree warming at the asset and portfolio level.
- RIBA **2030 Climate Challenge** targets the operational energy demand to be reduced by at least 60% from the current baseline. New build offices < 55 kWh/m²/y and residential <35 kWh/m²/y.



Stage of net zero carbon hierarchy

	Existing policy	Existing guidance
Increase renewable energy supply onsite	<ul style="list-style-type: none"> Smart Export Guarantee tariffs pay small scale generators for the renewable energy they export to the grid. Technologies include solar PV panels, wind turbine, hydro, anaerobic digestion, and micro-CHP. Renewable Obligations ensure all licensed electricity suppliers provide evidence to Ofgem that they have supplied customers in England and Wales with specified amounts of electricity generated from eligible renewable sources. 	<ul style="list-style-type: none"> The World Economic Forum’s Green Building Principles recommends PPAs and PV panels to generate onsite renewables. LETI’s Climate Emergency Design Guide suggests 70% of roof area should be covered with PV in medium and large scale residential. Small scale residential should generate 100% of annual energy requirements onsite. Offices should generate the annual energy requirements for at least two floors onsite.
Maximise offsite renewable energy procurement	<ul style="list-style-type: none"> Target to decarbonise the power system by 2035. The British Energy Security Strategy highlights that nuclear and hydrogen will make up a proportion of the UK energy supply. Wind to make up over half the renewable generation. Solar deployment to increase five-fold from the current 14 GW by 2035. Policy costs will be rebalanced to deliver cheaper electricity than gas this decade when the current gas spike subsides. This will be done through the Renewable Obligation, Smart Export Guarantee and Energy Company Obligation. 	<ul style="list-style-type: none"> The World Economic Forum’s Green Building Principles recommends following their renewable energy hierarchy when procuring offsite renewables: <ol style="list-style-type: none"> PPAs High-quality green tariffs Standard or low-quality green tariffs



Stage of net zero carbon hierarchy

Offset remaining carbon

Existing policy

Department for Environment, Food & Rural Affairs (DEFRA) good quality criteria recommend offsets are:

1. Additional
 2. Avoid leakage
 3. Permanent
 4. Validated and verified
 5. Avoid double counting
 6. Transparent
 7. Issued after emissions reduction
- **Government funding** worth £54 million awarded to develop carbon removal technologies in Direct Air Carbon Capture, Bioenergy Carbon Capture and Storage, Biochar, and Seawater.
 - **Voluntary Carbon Markets Integrity Initiative**, co-funded by Government, is developing a Claims Code of Practice to guide credible, voluntary use of carbon credits.

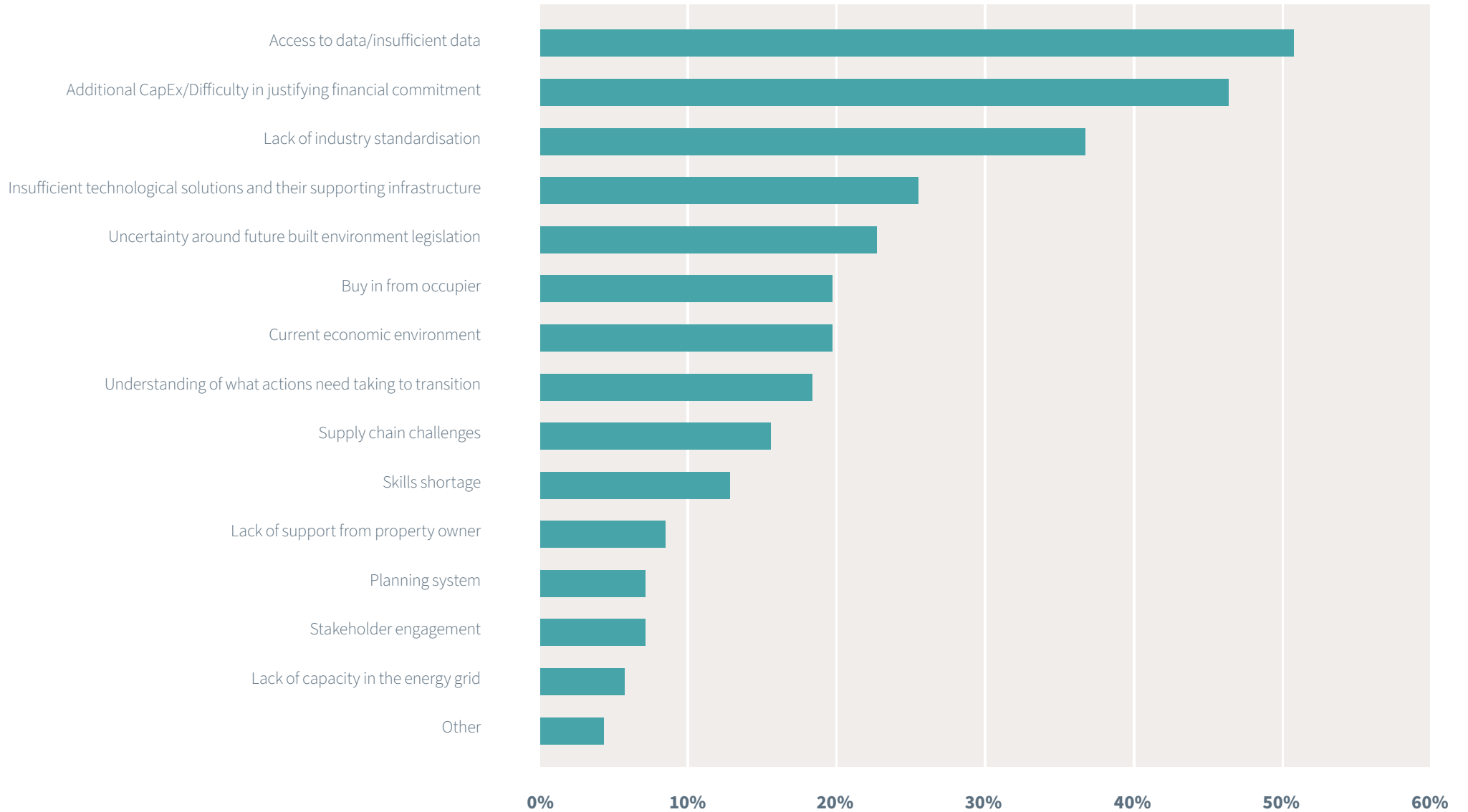
Existing guidance

The **Oxford Principles for Net Zero Aligned Carbon Offsetting** seeks to guide the delivery of offsetting residual emissions with four principles:

1. Ensure the environmental integrity of offsets used and disclose how those offsets operate
2. Shift offsetting towards options that directly remove carbon from the atmosphere
3. Shift offsetting towards long-lived storage, which removes carbon from the atmosphere permanently or almost permanently
4. Support development of a market for net-zero-aligned offsets



Figure 5: The top challenges to a net zero carbon transition. Source: JLL/BPF survey



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