

Royal Institute of British Architects

Department of Business, Energy and Industrial Strategy: Review of net zero: call for evidence

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The Royal Institute of British Architects is a global professional membership body driving excellence in architecture. We serve our members and society in order to deliver better buildings and places, stronger communities and a sustainable environment. Being inclusive, ethical, environmentally aware and collaborative underpins all that we do.

The Royal Institute of British Architects (RIBA) welcomes the call for evidence for the Government's net zero review. Around 40% of global carbon emissions stem from buildings and architects have a significant role to play in reducing UK greenhouse gas emissions. The RIBA joined the global declaration calling an environment and climate emergency on 29 June 2019; just two days after the UK government passed a law stipulating the UK end its contribution to global warming by 2050, by bringing all greenhouse gas emissions to net zero.

RIBA is helping our members to achieve net zero through our [2030 Climate Challenge](#); calling on RIBA Chartered Practices to work towards net zero whole life carbon by setting targets for operational energy, embodied carbon and water usage.

The Government has a key role to play in setting ambitious standards to ensure that we meet our climate commitments and preserve the planet for future generations. The RIBA welcomes the direction of travel signified by many of the measures proposed by Government in recent years to help the UK reach net zero. However, we believe that there is a need for greater ambition if we are to drive economic growth and reduce the environmental impact of the built environment.

Therefore, the RIBA recommends that the Government:

- Set operational energy and embodied carbon targets for new buildings.
- Promote and undertake Post Occupancy Evaluation to help close the performance gap.
- Tackle energy demand within buildings by introducing a National Retrofit Strategy – a long-term plan and investment programme for upgrading the energy efficiency of our housing stock.
- Introduce a sliding scale of Stamp Duty, where the most energy efficient homes pay significantly less than the least.
- Make improving the energy efficiency of England's building stock a national infrastructure priority.
- Ensure local authorities must have the knowledge, skills and clout to improve energy efficiency in their local area.

Ensure new buildings meet the highest standards

The Building Regulations set minimum standards, providing a baseline for the built environment. However, the recent consultations into the Future Homes and Future Buildings Standard, which suggest changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations, are not ambitious enough to ensure our new homes and buildings do not negatively impact the environment.

The Government has an important role to play in setting adequate standards to reach net zero and help drive economic growth. Therefore, the Government must:

Start regulating total energy consumption and not introduce primary energy

The Future Buildings Standard proposes using primary energy as the principal performance metric in the Building Regulations and we do not believe this is the appropriate approach. Primary energy is a complex metric with factors that change over time. Primary energy will become less relevant as the electricity grid decarbonises. Primary energy also favours gas over electricity, going against heat decarbonisation objectives.

Instead, we must start regulating the amount of energy used by a building. We suggest that operational energy becomes the key metric. The metric is already well known and understood within the sector as well as by building owners and occupiers.

Using operational energy as the key metric would also allow for benchmarking and minimum standards to be easily established based on building type, driving further innovation within the built environment.

Set actual energy performance targets for buildings

The Building Regulations suggest a reduction in performance relative to a prescribed notional building. The notional building does not reward efficient building form and orientation.

We must move towards setting actual energy consumption requirements, measured in energy use intensity (EUI), in kWh/m²/yr. This would encourage architects, engineers, developers and building owners to work together, be innovative and reward good design based on form, orientation and fabric performance.

Ensure new buildings are really on track for net zero carbon, with low energy demand and no fossil fuels

The Future Buildings Standard consultation states that new buildings should be “zero carbon ready”. However, to help address the climate emergency we must ensure we are constructing “net zero carbon buildings”.

Net zero carbon buildings seek to balance operational energy consumption with the UK grid renewable energy capacity. This means they should minimise their energy demand, including all energy uses. Government must set adequate energy targets to ensure both energy demand and energy consumption are reduced.

Assess building performance better to close the performance gap

We have known for many years there is a gap between anticipated and actual performance of buildings. The current tools used to assess a building's compliance, such as Simplified Building Energy Model (SBEM) and Standard Assessment Procedure (SAP), do not accurately predict actual operational energy or carbon performance. Therefore, they are an inappropriate methodology to reduce the climate impact of the built environment.

There needs to be better enforcement of regulatory requirements. In addition, Post Occupancy Evaluation (POE) methods associated with regulated predicted performance requirements must be used to improve predictive energy modelling through verification and comparison in use. Without checking how buildings actually perform, the industry is relying on unverified predictions of performance.

The Government should not only promote and endorse POE but require POE as a condition for all publicly funded buildings and housebuilders receiving Help to Buy payments. This is essential for transparency of how public money is spent, but also provides data that can be shared and learnt from, allowing for continuous improvement on energy efficiency within the built environment.

Introduce and regulate embodied carbon targets for buildings

The carbon emissions from a building's operational energy use make up only a portion of the carbon emitted across its entire lifecycle. There are significant carbon emissions embodied in the materials used to produce, operate and maintain buildings. However, recent consultations do not address this.

Government must phase in requirements for the consistent assessment and reporting of whole life carbon and set targets for embodied carbon, which is the emissions associated with materials, construction, refurbishment and disposal, and these should be regulated. Embodied carbon targets should be in line with the RIBA 2030 Climate Challenge.

Introducing a National Retrofit Strategy

Improving the energy efficiency of the built environment will generate tangible reductions in energy use and drive the nation towards its net zero targets while aiding economic growth. 48% of emissions from the UK built environment are produced by energy usage within the existing housing stock. This represents 16% of total UK domestic emissions. Of this, 62% are produced by heating, predominantly via fossil fuel boilers. Therefore, we must urgently upgrade the building fabric of the country's housing stock and move away from a reliance on gas heating – both to reduce carbon consumption and to ensure homeowners are less vulnerable to volatile gas prices.

This is a significant challenge, but one the Government must rise to through a well-funded National Retrofit Strategy – a long term policy and investment programme for upgrading the energy efficiency of England's housing stock. Such a strategy would need to be based on substantial and sustained government funding but ultimately ensures that the nation's transition towards net zero also facilitates economic growth

Improving energy efficiency is the “no regrets” solution to the energy crisis, climate crisis, and levelling-up agenda. Energy efficiency improvements reduce household energy bills, resulting in a

sustained boost to the economy and consumption through increased disposable incomes in the long term. Retrofitting homes also improves health outcomes and is integral to reaching net zero.

Some regions in the UK, for example the North East and West Midlands, have both a high volume of energy inefficient homes and high levels of unemployment. Investing in energy efficiency will create jobs across the country, often in areas that need it the most – providing local jobs for local people.

As outlined in our 2022 [Homes for Heroes: solving the energy efficiency crisis in England's interwar suburbs](#) report, for every £1 million spent on energy efficiency, about 23 jobs are directly supported in the energy efficiency industry. The move from traditional natural gas heating and current insulation solutions to low carbon energy efficient housing will mean an increased demand for interdisciplinary skills and retrofitters that work across multiple technologies. If priority is given to the installation of external insulation to all of England's interwar homes, 5,000 full time jobs could be generated every year for the next ten years, as well as a 230,000 increase trained workforce by the end of the decade.

Addressing fuel poverty is an area in which, with carefully planned and delivered policy, realising social justice and reducing carbon emissions can be achieved simultaneously. Alleviating fuel poverty is a worthwhile goal in and of itself as a means of improving the quality of life and health outcomes for the poorest and most vulnerable in society. It also provides economic stimulus opportunities – both through the creation of construction jobs and the increased disposable incomes of previously fuel poor households – that can help to boost local economies, and level-up across the country.

To help realise these benefits the RIBA recommends a National Retrofit Strategy must include all housing tenures. Focusing on low income and vulnerable households who cannot afford to upgrade their homes and heating systems must be a key part of the Strategy.

In addition, our Homes for Heroes report highlights that in 2021, 17% of households in interwar suburbs – from Kingstanding to Becontree – were in fuel poverty, proportionally higher than the overall national rate of 13%. Largely due to their poor insulation, solid wall construction, and high gas reliance, many interwar homes leave residents vulnerable to soaring energy prices. Only 10% of interwar homes achieve an Energy Performance Certificate (EPC) above Band C. If current Band D rated homes were retrofitted to achieve Band C performance, households would save £483 per year under the February 2022 energy price cap. By retrofitting some England's most energy inefficient interwar homes, instances of fuel poverty will be drastically reduced.

Improving the energy efficiency of the housing stock has for too long fallen off the list of Government priorities. The rise in home and flexible working, coupled with increasing gas prices and the invasion of Ukraine, means that there is no longer any time to waste to reduce energy demand through improving the energy efficiency of our housing stock.

Using the tax system to incentivise retrofitting

Previous Government policies, including the Green Deal, have not been successful at incentivising homeowners to improve their energy efficiency. This is for several reasons, including high interest rates and homeowners not being convinced to improve energy efficiency based on energy bill savings alone.

Additionally, the start-stop nature of funding for energy efficiency improvements, which has been the norm to date, has also not helped supply chain growth. We need a long-term plan and investment programme for upgrading the energy efficiency of our housing stock.

Rollout of a National Retrofit Strategy involving wall insulation and effective deployment low carbon heating must be done so in a way that incentivises the owner-occupier sector to retrofit their homes. Altering the tax system is one way to do this. The RIBA suggests a sliding scale of stamp duty, where the most efficient homes pay much less tax than the least. This could be capped at £25,000 to avoid large and potentially punitive increases on expensive homes.

Evidence shows that people are more likely to pursue installing energy efficiency improvements at certain trigger points, including when they are moving home. Therefore, reforming stamp duty creates an opportunity to incentivise a large proportion of homes each year. We also recommend a time-limited rebate period, to encourage homeowners to make their own energy efficient improvements.

However, stamp duty reform is not a silver bullet solution. It should be implemented as part of a suite of measures, through a National Retrofit Strategy that includes adequate funding and green finance options.

Council, inheritance and capital gains taxes could also be revised to encourage energy efficiency. Since far fewer homes are subject to inheritance and capital gains tax compared to stamp duty, amending these taxes would not be as effective as proposed stamp duty reform. However, embedding energy efficiency across the tax system in this comprehensive way sends the message that the Government is committed to meeting net zero targets.

Ensure energy efficiency is prioritised by Government departments

The cross-departmental nature of energy efficiency has meant that crucial elements of its policy have been lost between departmental remits, allowing departments to shift accountability amongst one another. For the built environment, this is especially acute as energy efficiency is led through the Department for Business, Energy and Industrial Strategy, but housing is led by the Department of Levelling Up, Housing and Communities.

To ensure that energy efficiency improvements receive adequate funding and long-term policies, we suggest that coordination across departments could be more effective through a HM Treasury led infrastructure approach.

The RIBA also suggests that improving the energy efficiency of England's building stock must become a national infrastructure priority. To date, buildings have not been seen as part of the nation's infrastructure and have therefore been on the receiving end of less funding on the basis that energy efficiency improvements have not been funded as part of the Government's infrastructure investments portfolio. Infrastructure projects by HM Treasury are valued more highly on the basis that they are deemed to have higher private sector multiplier effects, meaning they are seen to offer better returns on investment.

Making energy efficiency a national infrastructure priority would have real benefits. It would lead to energy efficiency improvement investments to be considered, as is the case with other infrastructure priorities, on a longer time horizon than the 5 to 10-year cycles that dominate current policy discussions.

Broadening the time horizon on which the Government are considering energy efficiency investments would send a clear signal to the private sector of the direction of travel and would begin to help eradicate the stop-start nature of policy in this area which has often led to boom-and-bust cycles in the mostly SME retrofit construction sector.

The role of the planning system in reaching net zero

Local authorities must have the knowledge, skills and clout to improve energy efficiency in their local area

Local authorities and social housing providers are active in delivering energy efficiency improvements but installing energy efficiency and low-carbon heating in these homes is subject to funding constraints.

The Government should urgently bring forward the remainder of their commitment to the £3.8 billion capital Social Housing Decarbonisation Fund. A retrofit revolution led by social housing landlords would not only cut carbon emissions and help fight climate change, but would also create jobs, support local economies, and help tackle fuel poverty – whilst helping to level-up across the country. Ramping up delivery of energy efficiency measures as a step on the way to decarbonising heat more fully, is something all local authorities with housing duties should do.

Local authorities also have the power to enforce Minimum Energy Efficiency Standards (MEES) in the private rented sector which makes up 19% of housing in England, a sector traditionally performing poorly on energy efficiency standards.

However, with local councils severely hampered by funding and capacity constraints, we are concerned that MEES are not being properly enforced. The Government ought to ensure that enforcement is fully funded at the local authority level. This means either providing a central allocation of funding specifically for building enforcement capacity in local councils, or by overseeing a cost-neutral means of enforcing the standards, such as through the charging of non-compliant landlords.

Local authorities can play an important role in providing advice and information for residents on energy efficiency and low-carbon heating options. Raising awareness of the transition to net zero needs to be undertaken in sequence with practical support and options for action, so that people are supported. Local authorities must work with delivery partners and community-based organisations to promote what works locally.

Permitted development rights

The extension of Permitted Development Rights (PDR) means that local authorities now have very little control over many aspects of change in their area, particularly in town centres. PDR allows for building owners to undertake certain types of work without the need to apply for planning

permission. While a significant number of homes have been delivered, the lack of regulation has seen a substantial number of extremely poor-quality housing since the policy was introduced.

Removing the oversight of local authorities and the planning system from the process has led to a decline in standards. There are also no requirements relating to the quality or sustainability of new homes delivered through the conversion of offices and commercial premises to dwellings. It is vital that all new homes – including those undertaken via PDR are sustainable and energy efficient.

Homes must be sustainable, long-lasting, affordable and contribute to the health and happiness of the people that live in them. PDR is fundamentally changing our building stock without consideration to sustainability and space standards. This failure to take a holistic view of what constitutes good design will inevitably lead to the continued and accelerated development of sub-standard housing.

The Government's proposed amendments to the National Planning Policy Framework (NPPF) highlight the importance of sustainable development within the planning process; however, the expansion of PDR is in direct opposition to this and does not guarantee sustainable or energy efficient homes.

Permitted development must be restricted to create a level playing field that ensures that all homes and buildings meet the same scrutiny, sustainability, safety and quality standards.

Green export opportunities

Our 2021 report, a [Decade of Action](#), revealed that architects are passionate about reducing the carbon output of the built environment, with 66% of respondents claiming that their organisation is extremely committed to addressing the climate emergency. In 2021, RIBA Chartered Practices exported £535 million, suggesting that a combination of the UK's strength in sustainable design, coupled with its successful exportation of architectural services could create significant green export opportunities for UK architects.

Delivering energy security and net zero

Whilst the Government's Energy Security Strategy signals progress and seeks to boost the UK's energy independence it should be noted that the Strategy focuses almost exclusively on energy supply. In order to tackle both energy security and affordability, focus must be placed on reducing energy use through improving the energy efficiency of our buildings.

Examples of place-based net zero projects

The RIBA's case study document, [Design Matters: Good Design Doesn't Cost the Earth](#), features RIBA award winning buildings that highlight innovative, proactive measures that architects are taking across the UK to design sustainable buildings, built for the future.