

Royal Institute of British Architects

House of Commons Energy Security and Net Zero Committee:
Heating our homes
August 2023

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 opportunity to respond to this inquiry. Around 40% of global carbon emissions stem from buildings and architects have a significant role to play in reducing UK greenhouse gas emissions.

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. The climate emergency demands urgent action and leadership the Government, the built environment sector and the wider construction industry.

We welcome this inquiry and the direction shown by the Government to improve energy efficiency and adapt to the changing climate. However, we believe there is a need for greater ambition if we are to significantly address the performance of homes and reduce the environmental impact of the built environment.

We believe that there are several areas that are critical to success in achieving the UK's net zero ambition, and with the right decisions, the UK can demonstrate global leadership and create a world-leading built environment sector.

The RIBA recommends that the Government:

- Introduces a National Retrofit Strategy – a long-term plan and investment programme for upgrading the energy efficiency and resilience of our housing stock.
- Sets operational energy and embodied carbon targets, in line with the RIBA's 2030 Climate Challenge.
- Promotes the uptake of, and requires, Post Occupancy Evaluation (POE) as a condition of procurement for building projects using public funding.
- Reforms Energy Performance Certificates (EPCs) to ensure they accurately measure actual energy performance.

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What policy changes are needed to deliver energy efficient homes across the UK?

Improving the energy efficiency of our existing housing stock

The UK has the least energy efficient housing in Europe and 80% of the buildings that will be in use in 2050, have already been built. We must urgently upgrade the building fabric of the country's existing 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.

The Government must introduce a National Retrofit Strategy – a long term policy and investment programme for upgrading the energy efficiency of England's housing stock. This needs to be based on substantial and sustained government funding, address incentives for homeowners, improve supply chain capacity and upskill workers.

Historically, there have been few incentives to drive the uptake of energy efficiency measures among those “able to pay”. Embedding energy efficiency in the tax system can help to achieve this. For example, introducing 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 indicates that people are more likely to pursue installing energy efficiency improvements at certain trigger points, including when they are moving home. A time-limited rebate period, to encourage homeowners to make their own energy efficient improvements, would further incentivise those who are considering carrying out renovations. Including a rebate period as part of the policy would mean that it raised less revenue but would potentially make it considerably more effective at stimulating demand for energy efficiency improvements.

Stamp duty reform is not a silver bullet to deliver a retrofit revolution. However, 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 (CGT) should also be revised to encourage energy efficiency. Whilst less effective than the proposed stamp duty reform, as far fewer homes are subject to inheritance and CGT compared to stamp duty, embedding energy efficiency across the tax system in this comprehensive way, would signal that the Government is committed to meeting its own net zero targets.

Upskilling the workforce

One of the biggest barriers to retrofitting, beyond the lack of long-term funding available, is the shallow pool of people with experience of undertaking this type of work. Government should invest in education and training for school leavers, providing an opportunity for them to access a path towards a high skilled, well-paid job in the retrofit workforce.

All retrofit works have inherent risks if designed or fitted poorly. For example, loft insulation is considered by many to be low risk; however, it rarely is. The need for adequate roof ventilation, roof repairs, electric cables, downlighters and other complications need to be adequately assessed and dealt with in a proper manner. Poor installation here, can lead to wet insulation, mould, damage to roof timbers and potential reduction in air quality and other matters below the loft.

Ensuring a whole house retrofit approach, using PAS2035 and underpinned by an appropriate assessment designed and coordinated approach, must be taken to ensure quality installation.

Stronger standards for new homes

Recent changes to the Building Regulations are not ambitious enough to ensure our new homes do not negatively impact the environment. The Government has a key role to play as a standard setter, and therefore, must:

Start regulating total energy consumption

We must start regulating the amount of energy used by a building and ensure that operational energy is the key metric for measuring energy efficiency. This is already well 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, helping to drive further innovation within the built environment.

Set actual energy performance targets for buildings

We must start setting actual energy consumption requirements, measured in energy use intensity (EUI), in kWh/m²/yr. This approach can help architects, engineers, developers and building owners to work together, innovate and reward good design, based on form, orientation and fabric performance.

Assess building performance better to close the performance gap

It is well known that there is a gap between anticipated and actual performance of buildings. 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 in practice, the industry is relying on unverified predictions.

The Government needs to promote and endorse POE and require it as a condition for all publicly funded buildings and housebuilders receiving Help to Buy payments. This is a good way to demonstrate taxpayers' money is being well spent, but also to provide data that can be shared and learnt from, allowing for continuous energy efficiency improvements 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 government consultations have not addressed this.

The 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.

What are the key factors contributing to the under-delivery of the UK's government-backed retrofit schemes?

Previous Government policies, including the Green Deal, have not been successful at incentivising homeowners to improve the energy efficiency of their home. This is for several reasons, including high interest rates and homeowners not being convinced to improve energy efficiency based on energy bill savings alone. The start-stop nature of funding for energy efficiency improvements, which has been the norm to date, has also not helped the situation. We need a long-term plan and investment programme for upgrading the energy efficiency of our housing stock, a National Retrofit Strategy.

How might the Government support innovation in delivering local solutions?

Local authorities are key players in addressing the climate emergency and many have set themselves very ambitious targets to reach net zero, often well before the UK target of 2050. It is imperative that local authorities have the knowledge, skills, and clout to address carbon emissions from the built environment in their local area.

However, there is limited mention of the role of local authorities in many of the Government's recent net zero announcements and strategies. A lack of clarity on the role of local authorities and piecemeal funding have hampered local authorities' ability to plan and implement climate action strategies. A framework for delivery of climate targets, taking into consideration local contexts, is required to ensure cohesive and effective action.

How will the public be able to afford the switch to decarbonised heating?

The Government has a role to play in supporting people to decarbonise their homes and helping to fund this where people are unable to, where appropriate. They must also stimulate private investment, to unlock as much green finance as possible.

The Government should learn from international examples of green finance to incentivise the switch to decarbonised heating. For example, in Germany in 2016, their national infrastructure bank, [KfW](#), [invested €1.7 billion to incentivise energy efficient renovation](#) through interest rate and capital subsidies. These incentives unlocked €8.4 billion from building owners – i.e., for every €1 invested, building owners were motivated to borrow and spend €6. The resultant VAT on these revenues alone (€1.6 billion) nearly covered KfW's own costs. Larger subsidy levels were dependent on achieving higher energy performance, which are more expensive to achieve, in turn, requiring building owners to spend more. These measures, coupled with low-cost borrowing, incentivised building owners to [spend six times more](#) than the Government investment itself.

Do the current EPC frameworks help consumers make informed decisions on transition?

We must improve the collection of data and metrics used to measure the energy efficiency of homes. The current energy efficiency tool, the EPC, does not accurately reflect the actual energy use of a building.

Understanding how much actual energy a building uses is crucial to identify where, and which, energy efficiency improvements can be made. Operational energy, or energy measured at the meter, captures the actual energy usage of a building. EPCs do not measure operational energy – making them an inaccurate measure of the energy efficiency of a building.

In addition, EPCs are inadequate as a retrofit design tool – a purpose for which they were not intended. As EPCs do not measure operational energy, improving the EPC rating of a building does not necessarily achieve meaningful energy reductions.

A “whole house” retrofit plan, with considered individual measures that are installed at the right time and work together, is instead crucial for successful energy efficiency works. When retrofitting a home, comparing the operational energy before and after retrofit works is key to ensuring the works have been effective in creating energy reductions and cost savings to the building user.

It is welcome that the Government is reforming EPCs, but this must be accelerated and move towards real-time monitoring to ensure households have accurate data about their properties that can prompt informed action.

What is the role of different levels of government in developing, funding and implementing schemes?

Local authorities and social housing providers are active in delivering energy efficiency improvements, but success is subject to funding constraints. Government must urgently bring forward the significant remainder of their commitment to the £3.8 billion capital Social Housing Decarbonisation Fund. Local authorities should also be empowered to use taxes, such as council tax, to incentivise private owners to retrofit their home.

Local authorities can play an important role in providing advice and information for residents and businesses on energy efficiency and low-carbon heating options too. 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.

Local authorities 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, they are severely hampered by funding and capacity constraints, and we are concerned that MEES are therefore not yet being properly enforced. The Government must 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.