

Department for Business, Energy and Industrial Strategy:

Written submission on economic recovery from COVID-19

The Royal Institute of British Architects champions better buildings, stronger communities and higher environmental standards through the practice of architecture and our 40,000 members. We provide the standards, training, support and recognition that put our members –in the UK and overseas –at the peak of their profession. With government and our partners, we work to improve the design quality of public buildings, new homes and new communities.

The Royal Institute of British Architects (RIBA) welcomes the opportunity to help shape the Government's response to rebuilding the UK's economy post COVID-19. This submission will focus on [green recovery: how to capture growth opportunities from the shift to net zero.](#)

The built environment is responsible for around 40% of global carbon emissions 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.

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 on behalf of the Government if we are to significantly improve the performance and reduce the environmental impact of the built environment.

Green recovery provides an opportunity to both stimulate the UK economy by creating jobs, supporting economic growth and helping the UK meet its long-term climate goals whilst also improving other key issues including health and wellbeing.

The RIBA suggests that green recovery should include a mix of public investment and policies that support private sector investment. The key areas of focus should be on improving the energy efficiency of the UK's existing homes with complementary policies on the energy efficiency of new homes and the promotion of Post Occupancy Evaluation.

Improving the energy efficiency of existing homes

The UK has the least energy efficient housing stock in Europe, and it is expected that 85% of the current stock will still be in use in 2050.¹ In the UK 19% of carbon emissions come from heating buildings, 77% of which comes from heating homes.²

The Government's Clean Growth Strategy sets the target of bringing all homes to Energy Performance Certificate (EPC) band C by 2035, "where practical, cost-effective and affordable". Currently, only 29% of homes meet this standard; which leaves a remaining 71%, equating to around 19 million homes, to be retrofitted if the UK is to meet its energy efficiency target.³ Revising this target and implementing a programme to renovate all homes to EPC band C by 2030 would bring average annual gross value added from construction sector output to the economy of over £3.5 billion to the UK⁴, whilst reducing the UK's carbon footprint.

A combination of Government investment and proactive policies to retrofit these 19 million homes can help stimulate the UK economy whilst addressing the climate emergency. Energy efficiency stimulus is an opportunity to incentivise investment, increase consumer spending, create jobs, upskill workers, and alleviate demand on the NHS whilst mitigating climate risks.

Stimulating investment and consumer spending

The Conservative Party earmarked £9.2 billion in their election manifesto for three energy efficiency programmes – the Social Housing Decarbonisation Fund, Home Upgrade Grants and Public Sector Decarbonisation Scheme. These must be confirmed in full and implemented as soon as possible.

These programmes will improve energy efficiency in homes that need it most, and will reduce energy bills, increasing a households' disposable income. Even with 'direct rebound' effects considered⁵ improving energy efficiency, over the long-term, secures cost savings which leads to an increase in consumer spending, aiding economic recovery.⁶

Unlocking disposable income through energy efficiency savings is not just for those in social housing or with low income households. The Government must set out clear retrofitting policies as part of a National Retrofit Strategy which includes investment and incentives for those in the "able to pay" market.

Internationally there are examples of Government stimulus unlocking private capital. 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 led to unlocking €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.⁷

Larger subsidy levels were dependent on achieving higher energy performance. Typically, improved performance is more expensive to achieve, 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.⁸

¹ UK Green Building Council, *A housing stock fit for the future: Making home energy efficiency a national infrastructure priority*, <https://www.ukgbc.org/sites/default/files/A%20housing%20stock%20fit%20for%20the%20future%20-%20Making%20home%20energy%20efficiency%20a%20national%20infrastructure%20priority.pdf>, pg 5

² House of Commons Business, Energy and Industrial Strategy Committee, *Energy efficiency: building towards net zero*, <https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/1730/1730.pdf>, pg. 6

³ House of Commons Business, Energy and Industrial Strategy Committee, *Energy efficiency: building towards net zero*, pg. 13

⁴ Energy Efficiency Infrastructure Group (EEIG), *Rebuilding for Resilience: Energy efficiency's offer for a net zero compatible stimulus and recovery*, https://www.theeeig.co.uk/media/1096/eeig_report_rebuilding_for_resilience_pages_01.pdf, pg. 17

⁵ Direct rebound effects could include a family choosing to keep their home warmer with reduced energy bills, for example.

⁶ EEIG, *Rebuilding for Resilience*, pg. 15

⁷ EEIG, *Rebuilding for Resilience*, pg. 15

⁸ EEIG, *Rebuilding for Resilience*, pg. 16

When the Government effectively stimulates investment and unlocks private capital, the demand for low carbon and energy efficient services and products will increase. This will increase the supply of new and innovative products coming to the market and create significant clean industrial growth opportunities in the UK and abroad.⁹

The Government must also help unlock stimulus from the financial sector. The Green Finance Institute's report: *Financing energy efficient buildings: the path to retrofit at scale* provides a series of financial innovation demonstrators designed to mobilise private capital to retrofit our housing stock.¹⁰ The Government could collaborate with the financial sector on green leases and Building Renovation Passports, for example, to promote private investment in energy efficiency.

Creating skilled employment opportunities across the country

Retrofitting homes to be more energy efficient would also create skilled employment opportunities. Research by the Energy Efficiency Infrastructure Group, of which the RIBA is a member, highlights that investment in energy efficiency measures will support over 150,000 skilled and semi-skilled jobs by 2030.¹¹

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.¹² Investing in energy efficiency will create jobs across the country, often in areas that need it the most – providing local jobs for local people.

Young people are likely to be disproportionately affected by the economic impact of COVID-19, however, investing in education and training for school leavers provides an opportunity for a highly skilled, well paid job for life.¹³

For employees unable to return to sites due to pandemic health and safety, they should be encouraged to undertake training and education on net zero construction and retrofit, for example, training to become a retrofit coordinator. This is an opportunity to drive the upskilling of the workforce and create a high quality, professional, cost competitive construction sector.

As part of a National Retrofit Strategy, the Government should support training and education through ringfenced funding. New Zealand, in their response to COVID-19, allocated NZ\$1.1 billion (£0.55 billion) as part of an environmental jobs package, and a further NZ\$1.6 billion (£0.8 billion) over four years for trades and apprenticeship training.¹⁴

Investment in energy efficiency and related training and education will help “level up” opportunities across the UK.

Health benefits

The five-year moving average of excess winter deaths in Great Britain is 35,600 per year. Of these, over 10,000 were attributable to living in a cold home and one in ten excess winter deaths are directly linked to fuel poverty.¹⁵

It is difficult and expensive to keep an energy inefficient home warm and the risks of respiratory and circulatory problems are exacerbated. Investing in energy efficiency can minimise risks to health and

⁹ EEIG, *Making energy efficiency a public and private infrastructure investment priority*, https://www.theeeig.co.uk/media/1063/eeig_net-zero_1019.pdf, pg. 7

¹⁰ Green Finance Institute, *Financing energy efficient buildings: the path to retrofit at scale*, <https://www.greenfinanceinstitute.co.uk/wp-content/uploads/2020/05/Financing-energy-efficient-buildings-the-path-to-retrofit-at-scale.pdf>

¹¹ EEIG, *Rebuilding for Resilience*, pg. 2

¹² EEIG, *Rebuilding for Resilience*, pg. 10

¹³ Energy and Climate Intelligence Unit, *Britain's homes hold the key to rebooting the economy*, <https://eciu.net/blog/2020/britains-homes-hold-the-key-to-rebooting-the-economy>

¹⁴ EEIG, *Rebuilding for Resilience*, pg. 17

¹⁵ EEIG, *Rebuilding for Resilience*, pg. 13

wellbeing, at the same time, easing the burden on the NHS. In England alone, it is estimated that the cost to the NHS of health conditions made worse by poor housing is between £1.4 and £2 billion each year. Reducing the pressure on the NHS will be especially important if there is a second wave of COVID-19 in the colder months.¹⁶ In a time where people are spending more time in their home, it is imperative that our homes are safe, healthy and affordable to run.

Energy efficient homes benefit the economy through job creation and increased consumer spending; the environment, through reduced carbon emissions; and the individual through lower bills, a reduction in fuel poverty and improved health outcomes.

Recommendations

- The Government must set a revised target of existing homes to reach EPC band C by 2030.
- The Government must set out clear retrofitting policies as part of a National Retrofit Strategy, including incentives to stimulate private capital and funding for training and education.
- The £9.2 billion earmarked in the Conservative Party's election manifesto must be confirmed in full and implemented as soon as possible.

Guaranteeing new homes do not negatively impact the environment

The Government has pledged to build 200,000 homes a year; and building these homes should continue to be a priority. However, new homes must not have a negative impact on the environment.

In 2019, the RIBA launched the [2030 Climate Challenge](#). The Challenge asks architects meet net zero (or better) whole life carbon for new buildings by 2030 by reducing operational energy, embodied carbon and potable water usage.

The importance of operational energy

To help the UK achieve its climate goals, there must be a shift in how energy efficiency is measured. Currently, the energy efficiency of a new building is measured as a comparison to an existing building of similar shape and size. This inherently benefits buildings of poor shape and design, as small changes may have a large impact on the energy efficiency performance but not make real progress in working towards net zero.

Additionally, energy use is predicted, rather than measured at the meter, which creates vast inaccuracies when compared to actual energy usage. Measuring energy at the meter, known as operational energy, should be the principal metric for energy efficiency as it captures the actual energy usage of a building.

To help the UK work towards our climate goals, the Government must set performance-based targets for operational energy. This would encourage architects, developers and homeowners to be innovative and reward good design based on form, orientation and fabric performance. Operational energy targets should be in line with the RIBA 2030 Climate Challenge targets.

It is vital that the Building Regulations support the intention of improving the energy efficiency in new homes. Currently, there are loopholes in the Building Regulations which allow housing developments to be built to energy efficiency requirements that have been superseded more than twice. These loopholes must be closed, and more stringent transitional measures implemented.

Setting specific operational energy targets and closing the loopholes in the Building Regulations will help demonstrate that the UK is a leader in green building design and architecture. This can support export opportunities in these areas.

Energy efficient homes save home users hundreds of pounds annually which can then be spent in other areas of the economy.

¹⁶ EEIG, *Rebuilding for Resilience*, pg. 13

New homes must also consider whole life carbon

Whole life carbon includes all carbon emissions that are directly related to the type and quantity of the resources used to create, maintain and use a building. A key element of this is embodied carbon.

Embodied carbon refers to the carbon emitted from the processes associated with sourcing materials, fabricating them into products and systems, transporting them to site and assembling them into a building. It also includes the emissions due to maintenance, repair and replacement, as well as final demolition and disposal.

The choice of materials used in construction can significantly impact the amount of carbon emitted during a project. Concrete, for example, is one of the most widely used building materials in the world. It is durable and strong, and when combined with suitable insulation it can make buildings incredibly energy efficient. Despite these positive qualities, concrete is also one of the biggest emitters of carbon, accounting for 8% of CO₂ emissions, globally.¹⁷

To help address the levels of embodied carbon in new homes, the UK should introduce embodied targets. Setting targets for embodied carbon will increase the demand for low carbon materials – stimulating growth in low-emission manufacturing of traditional materials and promote new innovative low carbon materials. Actively considering embodied carbon will also encourage the use of local materials, driving the built environment to source products from the UK where possible. These performance-based targets should be in line with the RIBA 2030 Climate Challenge.

Recommendations:

- Use operational energy consumption as the principal metric for measuring energy efficiency of buildings.
- Introduce operational energy and embodied carbon targets for buildings which are in line with the RIBA 2030 Climate Challenge.
- Close loopholes in the Building Regulations which allow homes to be built to energy efficiency requirements that have been superseded more than twice.

Endorsing and promoting Post Occupancy Evaluation

It is vital that building owners and users gain a better understanding of how their buildings are performing compared to the design intention. Even when a building's design has energy efficiency at its heart, the promised energy efficiency standards are not always met.

Undertaking Post Occupancy Evaluation (POE) is key to ensuring that a building is as energy efficient as intended. POE is the process of obtaining feedback on a building's performance in use after it has been built and occupied. POE accurately measures factors such as energy consumption, water usage, maintenance costs and user satisfaction.

If POE is not carried out, the building user is unaware of the energy efficiency improvements that could be made. POE also highlights where a building can be improved, allowing for a process of continuous improvement, and lessons learnt, in the construction industry.

The Government should not only promote and endorse POE but require POE as a condition of procurement of public funding for building projects. 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.

¹⁷ Chatham House, Making Concrete Change: Innovation in Low-carbon Cement and Concrete, <https://reader.chathamhouse.org/making-concrete-change-innovation-low-carbon-cement-and-concrete#>

As POE is a service, there is a cost associated. Whilst this cost is very small to the building user, research shows as a proportion of a project's cost POE costs an additional 0.1% - 0.25%¹⁸, POE requires a professional to undertake the work, providing employment opportunities. At the same time, the cost of undertaking the POE is injecting capital into the economy, whilst any issues discovered during the evaluation provide further opportunities for capital to be invested to make a building more energy efficient.

Recommendations:

- Government must endorse and promote POE.
- Government should require POE as a condition of procurement of public funding for building projects.

¹⁸ This figure includes the cost of post-occupancy surveys as well as the extra time required to address any identified issues in the post-handover stage ([Building, 17 June 2011](#)).