Briefing: Zero carbon buildings

The Paris Climate Agreement represented a turning point in efforts to tackle climate change and curb greenhouse gas emissions. The commitment to limit increases in global temperatures well below 2ºC will mean decarbonising the global economy by the second half of this century. The recent report by the Committee on Climate Change (CCC) found that the UK's legally-binding climate change targets will not be met without the near-complete elimination of greenhouse gas emissions from UK buildings. Likewise, emissions reductions from the UK's 29 million homes have stalled, while energy use in homes – which accounts for 14% of total UK emissions – increased between 2016 and 2017.[1]

To meet this challenge the World Green Building Council launched the global Advancing Net Zero Campaign in 2016 which is calling for a net zero carbon built environment. UKGBC have launched a new Advancing Net Zero programme to help drive this transition in the UK.

The campaign has set targets for all buildings to be net zero carbon in operation by 2050 and all new buildings to meet this standard by 2030. Net zero carbon should cover all energy used in the operation of a building and to be based on actual energy data.

Policy Context

In December 2006, the former Government promised that all new homes would be 'zero carbon' from 2016, with three clear regulatory steps in 2010, 2013 and 2016. This was a welcome announcement, that had a galvanising effect on the house-building industry and supply chain.

Following a UKGBC Task Group which recommended the adoption of a similar target for non-residential (or non-domestic) buildings, the former Government committed that all new non-domestic buildings would be zero carbon from 2019. The 2016 policy had a significantly positive impact on the house building industry, creating welcome certainty for long-term investment. The Government showed it recognised that small, incremental changes to Building Regulations every few years were simply not enough to precipitate a fundamental change in the construction industry.

The Coalition Government published a Written Ministerial Statement in July 2013 setting out what the next uplift for Part L 2013 for homes (a 6% improvement on Part L 2010) and for non-domestic buildings (a 9% aggregate improvement over 2010) would be.

In July 2015, the Government unexpectedly announced that it would not proceed with the zero carbon homes standard in 2016, or the non-domestic equivalent in 2019. Instead, it pledged to keep energy efficiency standards under review. In response to the cancellation of the scheme a successful amendment was tabled at Report stage of the Housing and Planning Bill 2015-16 in the House of Lords. This would have required the Government to put in place regulations for a carbon compliance standard for new homes by 2018. The amendment was removed in the House of Commons and replaced by a commitment to a review the energy performance requirements under Building Regulations, which is due imminently.

The current situation is that, at a time when the need to decarbonise is better recognised than ever before, it has now been a full 6 years since Building Regulations were last upgraded – the longest period without uplift since Building Regulations in their current form were first introduced in 1984.

In its Clean Growth Strategy, the Government set itself a mission to halve the energy use of new buildings by 2030. For homes this will mean halving the total use of energy compared to current standards for new build. This will include a building's use of energy for heating and cooling and appliances, but not transport.

The aim is to achieve this by:

- Making sure every new building in Britain is safe, high quality, much more efficient and uses clean heating.
- Innovating to make low energy, low carbon buildings cheaper to build.

[1]The Committee on Climate Change, "UK Housing: Fit for the Future?" https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/

- Driving lower carbon, lower cost and higher quality construction through innovative techniques.
- Giving consumers more control over how they use energy through smart technologies.
- Halving the cost of renovating existing buildings to a similar standard as new buildings, while increasing quality and safety.

The Clean Growth Strategy also committed the Government, following the outcome of the independent review of Building Regulations and fire safety, to consult on improving the energy efficiency of new and existing commercial buildings.[2]

Whilst the aims of the Clean Growth Strategy were laudable, they have still not been adequately matched by concrete policies to deliver them. In their 2018 report to Parliament – and again in their new report on homes published just last week – the CCC highlighted insufficient action by government, noting that:

- In 2017, annual temperature-adjusted emissions from buildings rose by around 1% relative to the previous year – the second successive year that temperature-adjusted emissions have increased.[3]
- Insulation rates have plummeted and are 95% lower than in 2012.[4]
- The necessary progress is not being made in the shift to low carbon heating.

They concluded that to be on track to meet the 4th and 5th carbon Budgets, the Government needs to remove risks from existing policies, turn proposals into firm policies, and put in place new polices where needed. On the level of local government, relevant policy is already being implemented. Both Manchester and London have committed to net zero carbon building targets and policies.[5]

Industry letter calling for greater action

In March 2018, UKGBC organised an open letter to Rt Hon Sajid Javid MP, then Secretary of State for Housing, Communities & Local Government and Rt Hon Greg Clark MP, Secretary of State for Business, Energy & Industrial Strategy, calling for swift action to introduce robust new energy performance standards for the UK's buildings. This highlighted strong support across the built environment sector for both medium- and long-term policy certainty, in order to both drive significant investment and catalyse innovation in the construction sector.

The letter, signed by over 50 members from across the built environment; including retail, construction and sustainability sectors, agreed with the Committee on Climate Change that new build standards should be tightened without further delay. It called on the Government to signal as soon as possible that by 2030 all new buildings should be 'net zero carbon', which means reducing all energy use as far as technically possible, with remaining demand met through renewables.

UKGBC Zero carbon task group

The UK Green Building Council (UKGBC) has convened an industry task group to develop a definition for net zero carbon buildings in the UK. The aim of the project is to build consensus in the construction and property sectors on a high-level definition of 'zero carbon buildings', which will allow the whole building value chain to work towards a consistent outcome in tackling climate change.

This project is bringing together a broad range of industry stakeholders to agree a framework of principles for net zero carbon buildings in the UK market. These principles will address areas such as energy use verification, fabric standards, whole life carbon, ventilation, and a renewable energy hierarchy. Whilst the ultimate metric will be carbon, the intention is to develop a coherent set of principles to avoid unintended consequences and ensure that properties work for occupants.

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[2] Department for Business, Energy and Industrial Strategy, "The Clean Growth Strategy", https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf P.12

[3] CCC, "2018 Report to Parliament", https://www.theccc.org.uk/wp-content/uploads/2018/06/CCC-2018-Progress-Report-to-Parliament.pdf P.11

[4] Ibid

[5] https://www.edie.net/news/6/Manchester-commits-to-making-all-new-buildings--net-zero--by-2028/ ; https://www.london.gov.uk/what-we-do/planning/london-plan/current-london-plan/london-plan-chapter-five-londons-response/policy

The intention is that the high-level principles can be integrated into voluntary reporting initiatives and building rating tools, and over time into planning requirements and building regulations. The project will not seek to specify standards for different building archetypes for 2030, but to agree a framework which will form the basis for these in the future. We will aim to launch the framework at an event in the first half of 2019.

Key asks:

To put the UK on course to meet both domestic and international climate change commitments, all buildings must be net zero carbon in operation before 2050, with new buildings meeting this standard by 2030. This requires action in all parts of the UK. We therefore urge MHCLG to commit in the forthcoming review of Building Regulations in England to:

- Set out a clear trajectory for improving Building Regulations so that all new buildings achieve net zero carbon (both regulated and unregulated energy, and in-use performance) by 2030, with dates announced for interim improvements.
- Require from 2020 at least a 19% improvement in the target carbon dioxide emission rate compared with 2013 Building Regulations. This is the equivalent of the scrapped zero carbon homes standard i.e. level 4 of the now defunct Code for Sustainable Homes.
- As a first step in the transition towards regulations based on operational performance (as opposed to design calculations), start to incentivise operational monitoring and collect operational data that have been voluntarily lodged. This should be accompanied by the sampling of a proportion of new developments and a voluntary alternative compliance mechanism based on actual performance. This would be in line with the greater emphasis on whole life performance of buildings set out in 'Building a Safer Future'
- In order to pave the way towards zero carbon, put in place a framework for carbon offsetting – or 'allowable solutions' – which should:
    - Only be used to complement requirements for maximum viable on-site carbon savings, as informed by operational data
    - Be informed by UK and international examples, including rules to ensure additionality and prevent double-accounting.
- To help drive innovation and investment, allow local authorities to set requirements beyond Building Regulations.
- Refocus Part F of the Building Regulations to address indoor air quality – and introduce a programme of indoor air quality monitoring to support the new requirements.
- Introduce an explicit requirement in Building Regulations to address and control overheating risk in all buildings.