

Scaling up commercial property retrofitting: challenges and solutions

Article

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Scaling up commercial property retrofitting: challenges and solutions

Progress in retrofitting the UK's commercial properties continues to be slow and fragmented. Two new reports argue that radical changes are needed, writes Tim Dixon

Commercial property produces 10% of the UK's greenhouse gas emissions and consumes 7% of UK energy, and there is an increasing concern that the rate of progress in tackling energy inefficiency in existing stock is too slow. This is challenging, because it is estimated that by 2050 some 70% of today's buildings will still be standing, with 40% built prior to 1985 (figure 1). The importance of existing stock is also highlighted when it is appreciated that the rate of turnover of the building stock in the UK is very slow, with less than 1-2% each year being new build.

There is a clear untapped potential in the sector: for example, it is estimated that UK business is overlooking a potential cost saving of £1.6bn through under-investment in energy efficiency, with the UK's commercial retrofit market potential estimated at £9.7bn. A key challenge then for the sector is how existing stock can be retrofitted in an integrated way and across building, portfolio and city level.

Drawing on new studies by EPSRC Retrofit 2050 and Carbon Connect, this article defines what is meant by "retrofit"; the drivers and barriers facing companies retrofitting their properties; and the changes in policy and practice that are needed to speed up progress in the sector.

Defining retrofit

In the academic literature there has been much debate over the meaning of "retrofit" and its distinction from "refurbishment" or "renovation". The *Oxford English Dictionary* defines retrofit as: "to provide (something) with a component or feature not fitted during manufacture; to add (a component or feature) to something that did not have it when first constructed". In other words, the term, which originated in the USA in the late 1940s and early 1950s, is essentially a blend of the words "retroactive" (applying or referring to the past) and "fit" (to equip).

Based on 37 in-depth interviews with key players, the EPSRC research found that in many instances a distinction was indeed made between retrofit – where a building could be refitted with relatively "light touch" energy efficiency measures, often while a tenant was still in occupation – and "refurbishment", which entails a much "deeper" level of retrofit with

FIGURE 1: GREENHOUSE EMISSIONS FROM BUILDINGS IN THE CONTEXT OF TOTAL UK EMISSIONS (MtCO₂e)

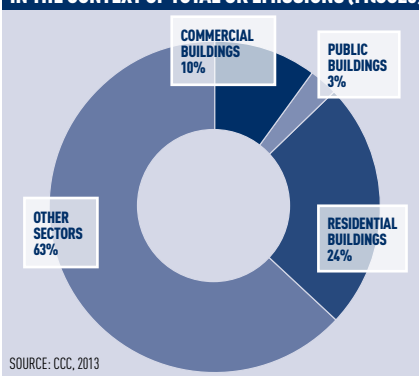
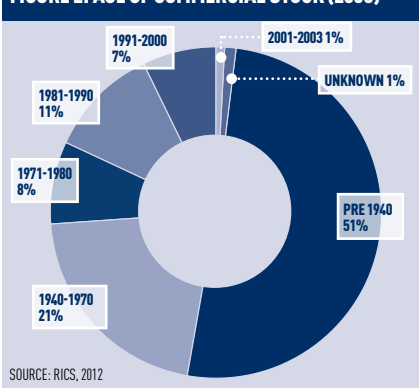


FIGURE 2: AGE OF COMMERCIAL STOCK (2003)



changes to the fabric of the building, usually occurring at lease renewal. However, in other cases, refurbishment was used rather than retrofit.

There needs to be a much clearer consensus over what the term retrofit means (table 1), as a lack of common

language and understanding is hampering progress. For example, although the RICS provides guidance on commercial property sustainability and valuation, the current edition of the guide does not define "retrofit" and "refurbishment" explicitly.

Moreover, retrofit measures can encompass not only energy, but also water and waste as well. For example, light-touch retrofit, such as energy-efficient lighting and controls, building services, and management systems, can reduce energy costs by up to 30-40% pa, but recycling water and waste can also have significant and positive sustainability and cost effects.

Drivers for retrofit

The most important drivers in commercial property retrofit relate to policy, economic factors (for example, rising energy costs) and marketing/reputation (figure 3).

Despite the criticism levelled against the Carbon Reduction Commitment (CRC) energy efficiency scheme, for example, it was seen in the EPSRC Retrofit research as being important in driving change in organisations.

There was a strong feeling that retrofit was landlord-driven, particularly in relation to larger and "deeper" projects, and in these instances there was a strong interrelationship with cost, with a desire to reposition the asset in the property portfolio. In this context a number of interviewees spoke about the distinction that exists between the drivers for owners and occupiers.

For owners, the drivers often relate to what can be described as an energy-related risk factor associated with premature obsolescence, and a potential depreciation

TABLE 1: SUGGESTED DEFINITIONS FOR RETROFIT AND REFURBISHMENT (ADAPTED FROM EPSRC REPORT)

| COMMERCIAL PROPERTY RETROFIT | COMMERCIAL PROPERTY REFURBISHMENT (OR RENOVATION) |
|--|---|
| The process of making planned interventions in a building to install or replace elements or systems which are designed to improve energy and/or water and waste performance. | The cyclical process of improving a building above and beyond its initial condition in order to increase asset value. The focus is on systemic upgrading and renewal of building elements, finishes and mechanical services, with a potential effect on energy and/or water and waste efficiencies. |
| TYPICAL CHARACTERISTICS | TYPICAL CHARACTERISTICS |
| Non-intrusive whole system upgrades, or new elements added to existing system. | Major alterations to fabric and/or services at a systemic, whole building level. |
| Carried out during lease or during ownership. | Carried out on lease renewal (or lease end), or on a cyclical basis in owner occupied property. |

of assets from a future “lettability” point of view. Owners are increasingly realising that higher energy performance standards are an essential part of marketing a property, and can be an enabler for commanding potentially higher rents.

Both reports also highlight the potential role of the Energy Act 2011, which from April 2018 will make it unlawful to let residential or commercial properties below a specified energy performance certificate (EPC) rating (thought to be F or G), which currently equates to 18% of total stock.

Barriers for retrofit

The main barriers relate to economic factors (overall cost and value impact), organisational issues and lease structures (figure 4). A key issue is that energy use is often only a small proportion of business costs, although this is increasing as energy prices rise. Aside from the “split incentive” problem (the landlord is responsible for the building but the tenant is responsible for energy costs), the required payback periods in leased premises are often limited to a maximum of five years (and normally two to three years), which restricts the type of retrofit measures that can be adopted. This is partly driven by perceptions of “risky” technology requiring longer paybacks, but also declining lease lengths.

Financing is also crucial, and lack of funding, particularly in the SME sector, is hampering progress. Most retrofit projects are paid for through self-financing or service charge arrangements, although there have been recent examples of energy performance contracting arrangements, where retrofitting is financed through projected future energy savings. Despite the roll-out of the Green Deal, there is still considerable scepticism about how the scheme can realistically apply in multi-tenanted situations, particularly with rates of interest in the scheme at around 7%.

However, organisational barriers should not be underestimated. For some commentators the term “barriers” carries

the sense that in some way if these were removed then energy efficiency would automatically act as a precursor to “rational” behaviour in the marketplace. But this ignores the organisational context for decisions and the interrelationship between the barriers themselves, and the fact that they should best be seen in the context of the wider legislative landscape and how companies arrive at investment decisions. For example, often leadership is lacking at executive level when it comes to retrofit projects, which may also be competing for core business funds against new construction or bigger capital projects.

Policy and practice implications

In a complex, diverse and conservative sector, rolling out retrofit at scale is challenging. Commercial property investors and developers tend to see retrofitting through the lens of individual buildings and portfolios rather than at city level. This, combined with the diversity of commercial stock and its geographical spread, can all lead to discontinuities between key stakeholders in the sector and retrofit projects across wider urban areas.

Achieving a consensus on what we mean by retrofit is essential, but for commercial property retrofit to succeed at scale requires urgent action in both policy and practice. This is founded on four key principles:

● **Financing is crucial to success.** The Green Deal needs substantial restructuring to be successful in the commercial property sector. There should be further financial strengthening of the UK Green Investment Bank, which could then offer support at city level to retrofit projects and also to SMEs.

● **Actual energy performance should be transparent.** Display energy certificates (DECs) should be mandatory, perhaps incentivised through business rates and stamp duty reductions for more energy-efficient properties. Other suggestions include increasing financial penalties for those failing to fulfil both EPC and DEC requirements.

● **Better integrated leadership at city level is needed.** Local authorities have a role to play in helping drive the retrofit agenda, but they face funding constraints. Local economic partnerships and the wider business community also have a key role through partnerships and innovative financing models. “Sticky” infrastructure projects, such as district heating schemes supported by incentives, could also provide opportunities for city-wide retrofit to attract commercial property stakeholders.

● **Consistency in standards.** There needs to be a clearer consistency in commercial retrofit assessment around BREEAM, Ska rating and other related standards. An approved products and suppliers list is also required for commercial property retrofit, with more transparent performance in use data, and better support for emerging technologies. There should also be better consistency in monitoring and verification standards, perhaps based around the International Performance Measurement and Verification Protocol (IPMVP). As the *Carbon Connect* report suggests, this could also be underpinned by a comprehensive database of UK commercial buildings, which could create a performance benchmark and help foster competition.

As one interviewee in the EPSRC research put it: “I don’t think that we need to wait and hang around for the next big thing. I think it’s there... it’s about people collaborating together, whether that’s developer, tenants, whole neighbourhoods or... retailers joining hands. We need to get together to put some scale into it, but I don’t think we can do that without some mandatory action, primarily by the government.”

Tim Dixon is professor of sustainable futures in the built environment at the University of Reading

Find the EPSRC Retrofit 2050 research at www.retrofit2050.org.uk and Carbon Connect at www.policyconnect.org.uk/cc

FIGURE 3: KEY DRIVERS FOR COMMERCIAL PROPERTY RETROFIT

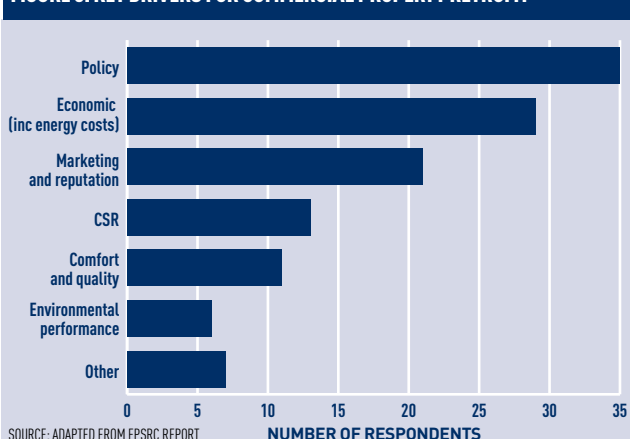


FIGURE 4: KEY BARRIERS FOR COMMERCIAL PROPERTY RETROFIT

