Retrofit and Sustainability

Second Housing Commission Roundtable Discussion Paper

The issue here, as articulated at the first roundtable, is that - in many parts of the country - it isn't how many houses there are, but what state they are in.

The problem is compounded by findings that 75 per cent of the new housing delivered since 2007 is poor or mediocre.[1] Most homes now built are of such low environmental performance that they need to be retrofitted almost straight away. Many local authorities are having difficulty getting developers to supply new housing – it's back to the quality issue – because they are spending all their budget on improving existing stock.

Why is retrofit gaining in importance? Because retrofit is at least as important in 'solving' the housing crisis as new build. Professors Dan Hill and Mariana Mazzucato have recently developed the argument along these lines.[2] They say, along with others, that the reason that prices have risen so spectacularly in recent years is nothing to do with how many new homes are being built. Therefore, the solution doesn't lie there. It is said that, if the UK was ever to meet the target of 300,000 new homes a year, it would account for almost the UK's entire carbon budget.[3] This sounds a little unlikely - nor is it clear how carbon budgets are defined.

ISSUE 1: COST AND BUREAUCRACY

It is currently extremely expensive to retrofit, and especially for most households to do it on their own. They would have to find skilled and competent tradespeople, agree a contract and what to expect, organise project timelines, agree example costs, get planning permissions, understand building regulations and insurance requirements, through to health and safety considerations and much more.

Getting all residential properties to at least a level C energy efficiency rating will cost approximately £440 billion![4] This sounds like a lot, since it would have to cost about £14.7m per house.

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[1] Carmona, M. et al. (2020). *A Housing Design Audit for England*. London: Place Alliance/UCL. https://www.ucl.ac.uk/news/2020/jan/ new-housing-design-england=overwhelmingly-mediocre-or-poor Quoted by Hill, D. and Mazzucato, M. (2022) *Modern Housing: An environmental common good,* Council on Urban Initiatives. https://media.graphassets.com/rJl9iazpS7ni8zAoKY7X

[2] Hill and Mazzucato (2022) *op cit.*

[3] zu Emergassen, S. et al (2022): 'Biodiversity: Why New Rules to Ensure Nature Benefits from Building Projects could Fail', *The Conversation*. http://theconversation.com/biodiversity-why-new-rules-tonsure-nature-benefits-from-building-projects-could-fail-179701 Quoted in Hill & Mazzucato (2022), *op cit*.

[4] https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf

[4] https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf

It is also very bureaucratic and complex. The Green Deal energy efficiency scheme, promoted by the government from 2013 to 2015, assumed there would be high consumer interest in low cost insulation measures. But only 14,000 households (0.05 per cent of the target market) took advantage of Green Deal loans during the scheme's existence, even though they were well-publicised. Yet people buy double glazing regularly, though it can cost up to four times more than Green Deal measures to achieve the same level of warmth.[5]

Nor is cost people's only consideration, or even the most important factor for people. Hassle and aesthetics are at least as important. The current policy approach fails to take this into account. For large scale retrofits to be desirable, they have to be seen as simple to do and enhance a home's appearance, as well as being affordable.[6]

The Green Deal was modelled on what the Lib Dem council in Huddersfield had achieved by going street by street. But people's trust in central government is that much lower. and their procedures are that much more bureaucratic. This has to be a lesson on delivering retrofit in the future.

The most complex aspect of retrofit and development is when councils are trying to retrofit across a former council estate which has been partially privatised. Working on an ambitious retrofit project in Edinburgh, Indy Johar of Dark Matter Labs wrote:

"The buildings considered viable for the council's retrofit programme end up being limited to those where the council itself owns all units... This individualisation of responsibility does not just concern money, but also time and knowledge — the complex and inconsistent retrofit landscape of contractors and products, requires the individual homeowner to invest time in research, with little experience or expertise to guide them."[7]

This is backed by the Centre for Local Economic Strategies (CLES), after their own experience of working with Manchester Council. They argue that, although the national approach to heating decarbonisation is ambitious, *"it lacks an understanding of what residents are motivated by and does not fully appreciate the implications and challenges of retrofitting at scale. Moreover, it is not based on solid evidence regarding financing retrofit or retrofits' actual carbon reduction efficiency*."[8]

There is a problem about the financial architecture for retrofit. We have already seen the difficulty which individual homeowners have when it comes to joining in with retrofit, and it has been even more difficult for the agencies which are contracted to carry it out. It is worth noting that big banks prefer to deal with big players. It is one of

[5] https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf
[6] https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf
[7] Johar, I. ((2021)*'The system: challenges to retrofit',* Dark Matter Labs. https://provocations.darkmatterlabs.org/the-system-challenges-to-retrofit-3913efd718a3
[8] https://cles.org.uk/wp-content/uploads/2022/12/Retrofitting-housing-December-2022.pdf

the reasons why the UK has lost its SME building sector.[9] So if we want smaller building companies to re-emerge to take on the retrofitting task, it will be difficult dealing with big players. Worse than that, the UK has no dedicated housing bank, like KfW in Germany, which lends money to smaller players who want to carry out retrofitting. They also underpin the Spaarkassen network of local banks.

EU rules prevent other European countries from setting up a similar below market rates lender like KfW because it was there already when the Treaty of Rome was signed. But the UK is no longer in the EU, so maybe it is time to think afresh about local banking.

ISSUE 2: LACK OF SKILLS

The UK is seriously short of retrofitting skills. We have had a dramatic shortfall in the skills needed to retrofit existing homes with heat pumps and change cladding that should never have been installed. They are the same skills needed to build 300,000 homes a year: electricians, plumbers, bricklayers, plasterers, tilers, scaffolders, bathroom fitters and roofers.

The shortfall in such skilled labourers has been described as "urgent and alarming". If nothing is done, research by the UK Trade Skills Index, conducted by Capital Economics on behalf of tradespeople directory Checkatrade, estimates that the skills gap in the construction and repairs industry will reach 937,000 by 2032.[10]

This prediction is one of a string of dire forecasts. The Construction Industry Training Board believes that an extra 225,000 workers will be needed by 2027.[11] Kingfisher, the retailer that owns Screwfix and B&Q last year estimated that the UK will lose £98 billion of output due to a shortage of tradespeople.[12] And an analysis of OECD data by the think tank Onward suggests that building and construction is the sector in which we have the biggest skills shortfall. Their previous *Greening the Giants* report revealed that up to 1.7 million new roles will be required by 2030 for the UK to transition to a fully net zero economy.[13]

Yet skill sets crucial for the green transition are in a chronic shortage in the UK.[14] Not only do we not have enough people with these skills, the training and apprenticeships involved in upping the numbers can take years. Attempts have been made to fill in the gaps with initiatives such as the apprenticeship levy, T-levels, expanding technology institutes along with skills bootcamps and a local skills improvement fund. But moving

[9] Lydia Prieg and Tony Greenham (2012) *Stakeholder Banks,* London: New Economics Foundation.
[10] https://www.thetimes.co.uk/article/alarming-shortage-in-skilled-labourers-v3rvcpzn0
[11] https://www.citb.co.uk/about-citb/construction-industry-research-reports/construction-skills-network-csn
[12] https://www.thetimes.co.uk/article/trade-skills-shortage-will-cost-uk-98bn-r7xnbv9kt
[13] Christie-Miller, T. and Luke, A. (2021) *Greening the giants.* London: Onward. https://www.ukonward.com/reports/greening-the-giants/
[14] https://www.ukonward.com/reports/net-zero-labour-market-challenge-report/

the dial quickly on construction skills will still prove very difficult despite all these efforts.

The number of new, trained building workers would need to be many tens of thousands each year, given that one in five of the current workforce is over fifty.

Brexit has not helped: the number of construction workers from EU countries has fallen sharply. Last year, the government had to put a wide range of building skills on the shortage occupation list to allow more migrants with relevant expertise.

But neither has the culture of aspiring to a university education and looking down on practical but vital skills. In the Kingfisher survey, only 13 per cent of 16- to 25-year-olds said they had been encouraged at school to consider trade career options, even though 42 per cent of them would have liked more information on such roles. Young women, in particular, are unlikely to be given encouragement or relevant information.

Another crucial obstacle is the way in which very small business actually works. Many people in this industry are sole traders. Training an apprentice for two years is a cost and commitment that may extend further than an order book, and for the apprentice means lower pay, for a time, than alternative jobs. To have some hope of filling the huge gap in future skills, government policies would need to change the incentives at this micro level.

Those acquiring the right skills will have a job for life, and being paid better than the national average: an artificial intelligence programme will struggle to install the electrical wires in your bathroom, guarantee they are safe and connect the right wires to the fuse.

ISSUE 3: SUSTAINABILITY

"Meeting England's housing needs without transgressing national climate and biodiversity goals" - that is the core objective of a group of academics around the University of Kent at Canterbury.[15]

Most UK homes are not fit for purpose.

According to the Green Alliance, Britain has some of the least energy-efficient housing in Europe with two thirds of households living below the government's target energy performance certificate C rating." They also believe that 75 per cent of all housing built in England since 2007 is "mediocre" or "poor" and does not meet "the basic requirements for civilised living".

One estimate suggests that UK homes lose heat up to three times faster than homes in

[15] zu Ermgassen, S. et al (2023) 'A home for all within planetary boundaries', *Ecological Economics,* Vol 201, Nov.

Europe.[16] This means high energy bills and, for the poorest, a stark choice between heating or eating. It is estimated that more than 3-4,000 people die in England and Wales every year due to the cold, because they are unable to afford warm homes.

To meet climate targets, the UK has an ambition to make sure all homes have a Band C Standard by 2035. But only 29 per cent of homes now meet it. The UK's approach is nowhere near ambitious enough to tackle the remaining 71 per cent - which is one reason why energy efficiency improvements have stalled.

Housebuilding is a problem for climate change.

Emissions from housing and construction contribute approximately 27 per cent of all annual global carbon dioxide emissions.[17] In the UK, there have been no reductions in annual emissions from buildings observed since 2015.[18] The Committee on Climate Change recommended that all homes should be better than an energy rating of D by 2020. Nearly all of them require retrofitting to be consistent with the 2050 Net Zero target.[19]

The percentage of new homes with the top rating of A varied between 1 and 1.5 per cent each year from 2014 to 2020.[20] Homes constructed today which are not compliant with the 2050 net zero goal will have to be retrofitted at what could be a prohibitively high future cost.[21]

Difficulty in finding the right measures of success.

Government policy now, for all homes, must be 'zero carbon ready' by 2025. The same objective was set in 2006, but that was scrapped by the Treasury in 2015.

There was some relief in green circles when the government decided late last year that all new developments should have a 'biodiversity net gain'. This means all developments must leave the environment better off than they found it.

But earlier adopter councils which claimed 20 per cent improvement in biodiversity had actually ended up with a 34 per cent reduction in the area of green space.[22] That is the

[16] https://www.thetimes.co.uk/article/thierry-garnier-we-need-a-plan-to-insulate-britain-s-inefficient-homes-5rlfbmlbr).
[17] UNEP,(2020), op cit.
[18] Committee on Climate Change (2019).. *UK Housing: Fit for the Future?* London: CCC..
[19] Environmental Audit Committee (2021) *Energy efficiency of existing homes.* London: House of Commons.
[20] Ministry of Housing, Communities & Local Government (2021). 'Live Tables on Energy Performance of Buildings Certificates', London.. https://www.gov.uk/government/statistical-data-sets/live-tables-on-energy-performance-of-buildings-certificates.
[21] Serrenho, C,. et al (2019), 'Testing the greenhouse gas emissions reduction potential of alternative strategies for the English housing *stock'. Resource Conservation Recycling.* No. 144, 267–275.
[22] Phalan, B. et al, (2018). 'Avoiding impacts on biodiversity through strengthening the first stage of the mitigation hierarchy'. *Oryx* 52, 316–324. Quoted in zu Erngassen et al (2023).

problem with one-dimensional targets - if they survive in government, they tend to get finessed down to meaningless tickboxes.

POSSIBLE QUESTIONS FOR DISCUSSION

Slowburn Solutions

1. **How do we get more people into the construction industry, especially women?** Could schools give much greater prominence to tradespeople, particularly to female role models? Could there be a new national online platform for work experience and a new employment brokering service for construction and trades? How can we link together the initiatives - apprenticeship levy, skills bootcamps etc. - taken so far to equip the country to a clean energy transition. Could more apprenticeships be fully funded or allow tax-credits? Could a one-stop advice service help tradespeople through bureaucratic complications around training apprenticeships?

2. **How should we reform the banking system to make money for retrofitting available to householders and small construction companies?** Do we need a UK version of the German KfW banking infrastructure, to funnel low-cost loans towards housing retrofit? Would the network for Community Finance Development Institutions (CDFIs) provide a good model for dispersing the loans, as they do in the USA?[23] What do we know about the rates charged? Could the cost be added to a mortgage?

3. **Does Britain need its own prefabricated house industry,** like the Dutch-based Energiesprong, whch specialises in retrofit? Energiesprong just improved labour productivity by 75 per cent and reduced waste by 90 per cent (while the productivity of the UK construction sector has been flat since 1994)?[24]

Quicker wins?

4. **Are there measures which could be taken now to make it easier to retrofit existing properties – offices, retail and so on – as residential?** The long-term decline of the high street and changed working habits follow covid have left many town centre properties empty, but the planning and financial obstacles of retrofitting them to provide new homes. are often too great.

[23] Boyle, D. (2015) *Re-banking the UK*, Steyning: New Weather.
https://www.newweather.org/2014/01/01/how-to-re-bank-the-uk-effectively/
[24] https://green-alliance.org.uk/wp-content/uploads/2021/11/reinventing_retrofit.pdf

5. **How can we level the playing field between newbuild and retrofit?** Removing VAT from retrofit and repair might be a good start, as the government has just done for solar panels - yet recently, that sector has shrunk in UK - was this to improve the energy efficiency of the product in use?

6. **How do we get effective quantitative and qualitative measurements to know when we have been successful?** There is no point in retrofit that's cheap to heat for the first year if it leaks and falls apart in the second. What's the minimum budget for measurement required - perhaps an automatic dashboard display? Do we need more research on the best way to create more hot water at home - are gas combi boilers really the best way forward?

7. **How can we disincentivise using second homes?** Paul Cheshire and colleague suggest replacing regressive property taxes such as council tax with an Annual Proportional Property Tax, including a 25 per cent surcharge on second homes.[25] Could Stamp Duty be abolished for good?

8. **How do we create unbiased information?** Do we support the recommendation of the Homes for All report to establish a Parliamentary Housing Strategy Committee, based on the Climate Change Committee, to give annual reports to Parliament on progress and to hold the government to account?[26]

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[25] Cheshire, P., Hilber, C.A., (2021). *Home Truths: Options for Reforming Residential Property Taxes in England.* London: Bright Blue.
[26] CCC, (2020). *The Sixth Carbon Budget - the UK's Path to Net Zero.* Committee on Climate Change, London.