

# Options for accelerating retrofit rates in the domestic owner occupier sector

Peter Mallaburn

---

## 1 Introduction

Domestic retrofit is a particularly complex climate policy challenge, with many interconnected barriers: behavioural and technical, cost and affordability and supply-side capacity and skills. There is no shortage of advice on how to tackle the problem, with recent reports from [E3G](#) and the [Construction Leadership Council](#) being the most comprehensive. The government's Energy Security and Heat and Buildings Strategies set out the range of policy options that the government is considering.

A joint CREDS and BEIS workshop, held in May 2022, considered how energy performance benchmarking policies, such as those being applied to the rental and commercial sectors, could be applied to the owner-occupier sector. One such option set out in the E3G report is a "retrofit register" of homes with an Energy Performance Certificate (EPC) of D or below. The objective would be to provide a stimulus for householders to take action and a focus for future government intervention.

This note assesses the potential impact of the measure and how this could be accelerated using other policies that are being considered by the government. It is not an exhaustive desk study of the retrofit process: several excellent reports are available that do this. The intention is simply to comment on the suitability of the approach as a platform on which government could build on in the future. The note also considers a number of issues with EPCs being used as the benchmark for the implementing the register approach.

## 2 How would a retrofit register work?

The academic literature has dozens of papers examining various theoretical and practical aspects of retrofit.<sup>1</sup> They describe a highly complex problem best addressed by measures to generate demand from householders, overcome barriers to investment and address supply-side<sup>2</sup> capacity issues such as providing training for installers.

Reviews of successful international programmes<sup>3</sup> show that they are based on many policies and measures (a "policy mix" in academic jargon) each addressing a different barrier or intervention point in a coordinated way. The approach varies from country to country, with Germany using a subsidy-based model using its state-owned bank KfW, tax rebates in Italy<sup>4</sup> to more market-based approaches in the US such as the PACE loan scheme.<sup>5</sup>

So, compared to international "best practice" and studies drawn from the academic literature, a single measure approach would have limited impact given the complexity of the problem. At the very least some form of incentive is normally needed for householders who do not have access to the up-front capital. Also a register could be viewed as a rebranding of the current system given that EPCs are part of the conveyancing process.

However a register could have a significant impact for a cohort of "enthusiastic able-to-pay householders" who are most receptive to the benefits. A key demographic would be people already planning to "flip" their new home or renovate or extend an existing property. These householders would be more willing to absorb the additional cost of energy efficiency measures because they will already have finance in place. They will also be far more tolerant of the disruption and hassle of a commissioning a major build process. Also given that over a third of homes are owned outright<sup>6</sup>, the current high energy cost environment also creates a huge equity release opportunity for the non-mortgage lending sector.

Focusing on the able-to-pay sector would be a significant departure for the government, but a market segmentation of this type is probably the only way a retrofit register will have any impact.

---

1 [Expert views of building retrofit in the UK: residential, non-residential and heritage building renovations](#). Killip, G. & Fawcett, T., 2022.

2 "Supply-side" in this context means the providers of low carbon goods and services.

3 Policy strategies for achieving large long-term savings from retrofitting existing buildings. Sebi, C. et al. 2019. doi: [10.1007/s12053-018-9661-5](https://doi.org/10.1007/s12053-018-9661-5)

4 [Tax deductions for expenses related to the energy renovation of buildings](#). Italia Domani, 2022.

5 [Property assessed clean energy programs](#). US Office of Energy Efficiency & Renewable Energy, 2022

6 [Subnational estimates of dwellings and households by tenure, England: 2020](#). ONS, 2022.



It is hard to pin down what the potential demand might be from this demographic. For mortgages there are 1.2 million housing transactions each year, but it is unclear how many of these would be suitable to target with a register.<sup>7</sup> This number doesn't include homes that are renovated when they don't change hands, and particularly the significant potential in for the 36% of English homes (8.8m) with no mortgage. Industry figures suggest that the equity release market is growing but still small compared to mortgages with around 20,000 transactions each year.<sup>8</sup>

Buying a home isn't the only intervention point where a register might have an impact. It would also be useful for renovations such as extensions and internal structural reconfiguration where financial and disruption barriers will be lower. Presumably many properties will already have a valid EPC in place from the last transaction, but not all will, especially in properties where the owner has been living there for many years. Would these householders be required to get an EPC to go on the register?

The one caveat to a market segmentation policy focusing on the able-to-pay market is that, if it took off, it could soak supply-side capacity away from the Energy Company Obligation (ECO) market. This is a real risk given the pipeline shocks that have reduced the capacity of the sector since able-to-pay subsidies were removed from the old Carbon Emissions Reduction Target (CERT) scheme in 2012. Careful programme management will be needed to minimise this risk.

### 3 Information and advice

The government is developing<sup>9</sup> a "comprehensive energy advice service ... which will help consumers navigate what can be unknown territory to improve the energy performance of their homes". This was expected over the summer of 2022 to help householders prepare for the winter. What would be the key information requirements to make the best use of a retrofit register?

Again, there is a reasonably consistent story in the literature on what a retrofit advice service looks like. Two reports focus on information: from the [MCS Charitable Foundation](#) and the [UK Green Building Council](#). Both take a comprehensive, holistic view, anticipating the needs and circumstances of all householders, from initial awareness-raising of the benefits and technical options to complex retrofit co-ordination.

---

<sup>7</sup> [UK monthly property transactions commentary](#). HMRC, 2022.

<sup>8</sup> [Q1 2022 equity release market statistics](#). Equity Release Council, 2022.

<sup>9</sup> [British Energy Security Strategy](#). BEIS, 2022.



For able-to-pay householders any information programme should focus on salience and value. The key messages should be designed to shift the narrative away from high upfront costs to the wider benefits of an efficient home, with the advice tailored to exploit the drivers in play for a particular householder. Some householders might value more tangible benefits such as noise reduction, health and amenity, whereas others might be more receptive to wider environmental messages or hedging against price rises.

The UK Green Building Council report sets out the key barriers and requirements for householders considering major retrofit:

- Householders can be simply unaware of the potential benefits of moving from EPC F or G to C. They are also of the view that condensing boilers are a sound environmental option.
- Short-term non-energy "experiential benefits" of retrofit are very important considerations, such as wellbeing, amenity, health, comfort and noise reduction.
- Peer credibility can be a particularly strong driver by showing precedence – case studies of what other householders in similar circumstances have been able to achieve.<sup>10</sup>
- Longer term benefits are also important, such as personal environmental credibility and "future proofing" the property from future energy price rises.

Day-to-day energy costs are normally not a strong driver for affluent households compared to households where energy costs are a significant proportion of income. But the economics have shifted sharply in the last 12 months following the energy crisis. Investments with a 12-year payback are now economic in 4 years, and 30-year paybacks are starting to come within range. Heat pumps are likely to be an increasingly attractive option on a running cost basis alone.

In terms of the deployment of an information programme, the retrofit register would need to be promoted as early as possible in the conveyancing or equity release process. For house buyers to be competitive in the bidding process buyers ideally should have mortgage finance agreed in principle before making an offer. Early awareness of the register would give the prospective buyer the option of choosing a green mortgage product and beginning the process of planning the refurbishment.

Some form of organised professional support is a key element of any advice programme aimed at major retrofit. In its simplest form this takes the form of a "retrofit assessment" carried out early in the process, generally at the stage where the survey would be carried out as part of the conveyancing process. This is relatively inexpensive (around £175) and designed to identify the main opportunities as well as risks with the retrofit such as overheating.

---

<sup>10</sup> [SuperHomes](#), 2022



The assessment is designed to fit in with more complex "retrofit co-ordination" support for the retrofit process itself

Finally, in the absence of major regulatory or publicly funded measures, Ministers, through speeches and policy statements and energy efficiency advocates such as Martin Lewis have a pivotal role in engaging with householders and businesses, amplifying messages and setting the overall direction of policy travel. The historical analogue, in very similar political circumstances, is in the mid-1980s, in what has become known as the "golden age" of energy conservation, when the Secretary of State, Peter Walker, toured the UK at the head of a major £30m marketing programme. Ministers probably don't have the same influence as they had then, but a similar co-ordinated approach could have a significant impact using modern marketing and social media techniques.

#### 4 Access to finance

Lack of up-front capital finance is a key main barrier for all demographics. One advantage of focusing on able-to-pay householders is that they will have sorted out the mortgage finance for the retrofit at an early stage in the conveyancing or planning process. Including energy efficiency options would be relatively marginal additional commitment on top of, for example, a new extension or a back-to-brick renovation. But it adds complexity and risk, and as such needs careful planning and co-ordination with the mortgage provider.

As a retail product, UK green mortgages lending is a developing market, with around 40 mortgages and loans on offer. Retail banking as a sector is also beginning to move quickly on green finance as part of the global shift in ESG and compliance culture. Initiatives such as the [Net Zero Banking Alliance](#), a UN-sponsored group of banks committed to climate finance, is beginning to mainstream green lending at a corporate level. BEIS itself is active in the sector, with the Green Finance Strategy, a recent consultation on setting an average EPC C target for lenders' mortgage portfolios and a £20m development and demonstration programme for new green finance products.

It is therefore not hard to conceive of simple green mortgage offers tied to workable retrofit plans, with, perhaps, the lender paying for the retrofit assessment. Significant interest rate discounts could be made available for energy performance improvements in a set time. A key issue would be whether a retrofit register would lead to a rise in demand that would make such products worth developing. The industry has also said that default risk would be a key issue although this could be minimised with a robust retrofit plan and appropriate insurance-backed waivers.



Non-mortgage lending products such as equity release schemes are likely to be another key market given that over 8 million homeowners own their properties outright. It would be reasonable to assume that older homeowners (who make up a large proportion of the non-mortgaged demographic) are the least likely to consider retrofit, so non-mortgage green finance is probably going to be crucial, not just for enabling them to meet the costs of the work, but also in catalysing their interest in retrofit in the first place. Well designed, concessional green finance could also, in theory, be used to get homeowners interested in retrofit, and in doing things they may not have previously considered.

Timing for all householders is very important, so a government information programme needs to focus on key decision points in the process such as the structural survey, contact with trade bodies or trader-based websites and the application for finance.

Arguably, given that the government policy would be providing a route to market, industry should take the lead on the provision of information and advice in this sector. Safeguards would be needed to ensure that supply-side advice (i.e. on procuring products and installation services) was balanced and authoritative, but, with government backing, an industry-led information programme to support a retrofit register could co-ordinated by leading market players such as UK Finance, the Royal Institution of Chartered Surveyors (for surveyors and estate agents) and the Law Society.

## 5 Delivery

Even if armed with the right guidance and up-front finance, householders struggle with the identification and commissioning of companies capable of installing low carbon measures and ensuring that they continue to deliver the expected benefits. Wariness of “cowboy” companies is a well-known issue, but installer competence will be a particular concern for heat pumps, which need to be set up and maintained carefully to deliver their advertised benefits. Experience shows that householders have a strong preference for trusted, government-backed advice and delivery based on local needs.

Addressing these issues is, in theory, the function of the retrofit co-ordinator envisaged in the BSI PAS 2035 guidance and certified by Trustmark. However PAS 2035 is only just beginning to take off, and can be very complex to navigate for both householder and installer. It is also expensive: the full service can be as much as £5000,<sup>11</sup> or significantly more expensive than agent and conveyancing fees combined. This might put off even the most dedicated householder, although the fee could be added to the mortgage (indeed any sensible mortgage provider would probably insist that it was).

---

<sup>11</sup> [How much does a retrofit co-ordinator cost?](#) Checktrade website.



The government could, of course, restrict itself to establishing and marketing the retrofit register, leaving the implementation side to the market. However the combination of complexity and the preference for a trusted agent suggests that this would be the wrong approach, especially if demand from householders was significant, and that some form of scheme administration would be needed.

The government could use the Energy Company Obligation (ECO) scheme to support the implementation of measures by the able-to-pay sector. However ECO is delivered by energy companies, which are definitely not seen as trusted agents. A better delivery model would be the Warm Front Scheme which preceded ECO from 2000 to 2013. This used a referral-based system of local authorities, installers and other stakeholders to engage with householders and implement the measures. The government's close-out review of [Warm Front](#) considered that this referral mechanism used by Carillion, the scheme's delivery agent, was one of the schemes key strengths both in terms of delivery effectiveness and value for money.

### **Innovative business models**

Given the UK's strong historical track record with publicly funded retrofit programmes such as the Warm Front scheme and developments described above in the provision of green mortgage products, it might be expected that new service-sector business models would start to emerge that co-ordinate across the retrofit chain, unifying assessment and benchmarking, finance and insurance, supply-side commissioning, delivery, quality assurance and maintenance. We came across one such company in our research for this note which is in the early stages of product development and demonstration. We would encourage the government to assess the state of this nascent market and offer encouragement and support where appropriate.

## **6 Issues with EPCs**

There are a number of issues with policies linked to the EPC that could affect the effectiveness of a retrofit register. One is that there is no consistent correlation between the EPC and property value particularly where there is no mandatory requirement to improve performance, as is the case here. Royal Institution of Chartered Surveyors' valuation guidance for rented properties regulated under MEES (minimum energy efficiency standard regulations), and commercial property, where BEIS have made it clear that performance-based regulation is planned, both see a positive correlation between performance and value.

But this is not the case for owner-occupied properties, where the valuation guidance is restricted to commenting on the accuracy of the EPC. Interestingly there are signs that the opposite might be happening, where discounts are starting to be requested for poorly performing homes.<sup>12</sup> This reflects the situation seen in smaller commercial buildings.<sup>13</sup>

---

<sup>12</sup> [The Rightmove Green Homes Report](#). Rightmove, 2022.

<sup>13</sup> Australian non-domestic buildings policy as an international exemplar. Mallaburn, P. et al. 2021. doi: [10.5334/bc.114](https://doi.org/10.5334/bc.114)



Another concern is that the EPC C band covers a very wide range of insulation levels and energy use, roughly from 11,000kWh right down to 2,500 kWh for a 100 m<sup>2</sup> home. UCL's research, as well as the experience gained from Warm Front and other schemes shows that moving from an EPC D to a C might be too easy in that installers will install measures just to tip a D into a C. A boundary for the register at the top of the C range (SAP 80) would be more appropriate than using the current D/C boundary of SAP 69.

## Contact details

**Peter Mallaburn:**  [peter.mallaburn@ucl.ac.uk](mailto:peter.mallaburn@ucl.ac.uk)

This briefing should be referenced as:

Mallaburn, P. 2022. Options for accelerating retrofit rates in the domestic owner-occupier sector. CREDS Policy brief 024. Oxford, UK: Centre for Research into Energy Demand Solutions.

---

## About CREDS

The Centre for Research in Energy Demand Solutions (CREDS) was established as part of the UK Research and Innovation's Energy Programme in April 2018, with funding of £19.5M over five years. Its mission is to make the UK a leader in understanding the changes in energy demand needed for the transition to a secure and affordable, net-zero society. CREDS has a team of over 140 people based at 24 UK universities.

CREDS is funded by UK Research and Innovation, Grant agreement number EP/R035288/1

 [www.creds.ac.uk](http://www.creds.ac.uk)

 [@CREDS\\_UK](https://twitter.com/CREDS_UK)

 [www.linkedin.com/company/credsuk/](https://www.linkedin.com/company/credsuk/)



**UK Research  
and Innovation**