

Increasing investment for domestic energy efficiency

March 2018

Policy recommendations:

1. **Drive demand through a targeted communications campaign**, focussed initially on homeowner groups likely to invest in home improvements, at appropriate times in their ownership journey
2. **Support local authorities in communicating the benefits of energy efficiency and coordinating zoned retrofit initiatives**, noting the need for additional resources
3. **Establish a stronger target for all homes to be at least EPC C where possible by 2035** and publish further policy details on how to get there, considering introducing Home Retrofit Roadmaps
4. **Tighten MEES over time and ensure there is a credible threat of enforcement** to boost private landlord action
5. **Introduce a new zero carbon homes standard** to be enforced by 2020 to normalise warm and energy efficient homes
6. **Introduce fiscal levers to shift the market towards energy efficient homes**, piloting adjustable stamp duty based on the energy efficiency of a property, equity release schemes or cash back offers
7. **Improve EPCs so they are derived from operational rather than modelled performance data** to increase transparency and confidence in loan products dependent on energy performance
8. **Establish a standardised framework for green mortgages** to facilitate securitisation
9. **Consider making low cost finance available for retail lenders** to kick-start a low interest energy efficiency loan market

This policy paper considers how to increase energy efficiency investment in the private domestic property market to support the delivery of the Clean Growth Strategy. The first section provides a short background on the market. The second section looks at how to drive consumer demand for energy efficiency retrofits amongst homeowners and landlords. The final section discusses standards and fiscal levers to encourage a price premium for energy efficient homes, and what is needed to boost the market for energy efficiency mortgages and loans.

This paper is accompanied by a separate policy paper, *Increasing investment for commercial energy efficiency* and sits alongside a new report, *Towards the new normal: increasing investment in the UK's green infrastructure*.

BACKGROUND

England's housing stock is not energy efficient: it has an average Energy Performance Certificate (EPC) rating of D¹ and over 19m domestic properties in England and Wales are below an EPC C.² A 2014 English Housing Survey by the Department for Communities and Local Government found that 65% English homes could benefit from energy efficiency improvements.³

When it comes to investment, domestic energy efficiency suffers particularly from a problem of scale and demand. Although energy efficiency measures have already saved households around £290 per year since 2008⁴ there is a lack of demand for energy efficiency measures amongst homeowners. The low rate of investment has been attributed to the 'hassle factor' alongside a lack of trust in installations and the upfront cost.⁵

For major investors, domestic energy efficiency projects are too small scale: house-by-house cavity wall retrofits for a small semi-detached home average less than £600 for cavity wall insulation or around £7,000 for internal wall insulation⁶ (and more often happen on a room-by-room basis)⁷ rather than the millions preferred by the large investors who have access to low enough cost of capital.

Aggregating domestic properties together may help to achieve scale, but there can be real variation by architectural style which makes this difficult. Furthermore, energy efficiency savings often are not seen as an income stream for investors, as they are an avoided cost rather than a financial gain.

Driving the investment market for domestic energy efficiency requires multiple barriers to be considered in the round, including standards, trust, cost/access to finance and demand. In the first instance, homeowners must be willing to invest more in their own properties. Major investors can then lower the cost of financing energy efficient properties through retail products like mortgages and building from that, securities.

DRIVING DEMAND FOR RETROFIT

UK real estate is extremely diverse, with many small developers and homeowners in the market and a huge variety in domestic property types even on one street. This makes the UK housing market more difficult than most European markets regarding energy efficiency retrofits at scale. Furthermore, energy efficient properties do not tend to command a price premium, as approximately 70% of a home's value is derived from land value.⁸

¹ DCLG (March 2017) *English Housing Survey Headline Report, 2015-16*

² Committee on Climate Change (January 2018) *An independent assessment of the UK's Clean Growth Strategy*

³ DCLG (March 2017) *English Housing Survey*

⁴ Committee on Climate Change (March 2017) *Energy Prices and Bills – impacts of meeting carbon budgets*

⁵ Aldersgate Group (July 2017) *Energy efficiency in buildings*

⁶ BEIS (April 2017) *What does it cost to retrofit homes?*

⁷ Energy Saving Trust (2011) *Trigger points: a convenient truth*

⁸ Telegraph (5 December 2017) 'Our green and expensive land: why the UK's £10 trillion price-tag adds to its housing problem'

Government has trialled various forms of support for domestic energy efficiency retrofit, most notably the Green Deal.⁹ However, **a lack of consumer demand for domestic retrofits persist. If this is not tackled, innovative financing options and new government programmes will not incentivise meaningful take up.**

Owner occupiers

Privately owned residential properties represent approximately 15% of the UK's emissions.¹⁰ Although benefits from investment accrue directly to the owner occupiers, there has been relatively little demand to date.

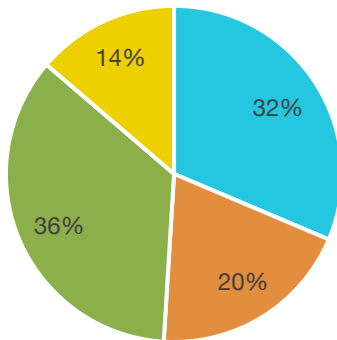
The three major barriers for retrofits are awareness, motivation and affordability. Driving greater demand will require **targeted communications at strategic times in a homeowner's journey.**

Timing

Targeting homeowners during trigger points may help to increase the uptake of retrofitting. Trigger points are any planned or anticipated home improvement projects (for which the primary motivation is not saving energy) alongside which energy efficiency upgrades can be made. For example, refitting a kitchen, building an extension or redecorating. It may also include buying a house.¹¹

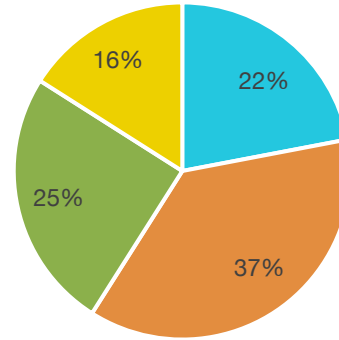
Key barrier to installing insulation

Cavity wall insulation



■ Awareness ■ Motivation
■ Affordability ■ Other

Loft insulation



■ Awareness ■ Motivation
■ Affordability ■ Other

Source: EST (2011) *Trigger point*

⁹ Launched by the Coalition government, the Green Deal offered loans to homeowners to undertake energy efficiency improvements: <https://www.gov.uk/green-deal-energy-saving-measures>

¹⁰ LENDERS core report (July 2017)

¹¹ EST (2011) *Trigger points: a convenient truth*

As of 2016, almost 90% of homeowners who completed a home improvement of some kind in the last three years also made an energy efficiency upgrade.¹² Making use of trigger points can address the three main barriers to installation as homeowners are already engaging with building professionals, are prepared for disruption and the cost may be lower as labour and equipment are already on site.

2011 figures suggested that 22% of homeowners surveyed are planning or anticipating a major refurbishment project within three years – the majority planning to redo their kitchen or bathroom, and a much smaller percentage planning an extension or whole house upgrade.¹³ 85% of homeowners expressed a willingness to stretch refurbishment budgets by an average of 10% for energy efficiency measures.¹⁴ **Targeting trigger points has the potential to create significant incremental improvements to the efficiency of the UK's housing stock,** particularly given that in 2016 homeowners in the UK spent around £18bn on repair, maintenance and improvement to their homes.¹⁵

Communications

Targeting communications campaigns through demographic and market breakdown should be explored to overcome awareness and motivation barriers. The EST and market research firm Ipsos Mori published research in September 2016 which found that homeowners are most likely to carry out improvements in the first five years after purchasing their house.¹⁶

Separate research found that the greatest potential for home improvements is amongst families with young children.¹⁷ Government could also take advantage of the salience of energy bills in current political discourse to communicate the contribution of energy efficiency in lowering energy bills.

Government is creating an online replacement for the Energy Savings Advice Service to provide consumers with tailored advice, taking over from the phone-line only service that currently exists.¹⁸ This 'digital first' approach is well-aligned with consumer behaviours, but having an online portal is not an end in itself: it will be important to drive interest and traffic to this portal to be useful.

Government should engage a communications agency or the Government Communications Service to drive interest through a primarily digital advertising campaign on home improvement and estate agent websites.

A campaign using up-to-date market insight to target key demographics at trigger points would help to drive awareness at a point where motivation is high. For example, more messaging around damp, mould and draughts (under an umbrella of 'comfort') to young families could help to promote building fabric improvements during a period of planned home improvement.¹⁹

¹² EST (September 2016) *UK Pulse*

¹³ *Ibid*

¹⁴ *Ibid*

¹⁵ Construction Products Association, *Construction Industry Forecasts 2017-2018*, spring 2017 edition

¹⁶ EST (September 2016) *UK Pulse*

¹⁷ EST (2011) *Trigger points*

¹⁸ BEIS (September 2017) *Building a market for energy efficiency: call for evidence*

¹⁹ EST (September 2016) *UK Pulse*

The role of local authorities

Local authorities (LAs) can play a key role in increasing uptake of energy efficiency retrofit. They may be able to coordinate zoned upgrades, creating cost savings through efficiencies and attracting more finance by increasing scale. Furthermore, LAs are amongst the most trusted sources of advice on home improvements.²⁰ They should proactively disseminate information about energy efficiency potential, providing guidance or retrofit roadmaps for each style of house, aligned with national ambition. However, LAs suffer from resource constraints.²¹

The Department for Business, Energy & Industrial Strategy (BEIS) should work closely with the Ministry of Housing, Communities & Local Government (MHCLG) to **identify resource gaps for LAs and areas where central government support would be most effective, with a particular focus on how to promote zoned retrofits.**

Private landlords

There is little incentive for private landlords to take on the cost of energy efficiency improvements without enjoying the benefits of lower bills and greater comfort. This must be driven by demand from renters, improved rental returns or regulatory requirements.

Driving renter demand

Only a third of the landlords surveyed by EST said they had ever been asked for the EPC (Energy Performance Certificate) by tenants in 2011.²² Although EPCs must now be provided to tenants by law, this implies a general lack of interest. Empowering renters with greater awareness at key points on their rental journey (advertising on Zoopla and similar websites) could drive market demand for more efficient houses.

Nonetheless it is likely that this will remain a lower priority than price for most renters. **Developing online comparison tools on sites like Zoopla that estimate annual costs of two houses with different EPC ratings would help to clarify the price differential in a digestible format.**

Improving rental returns

If advertised rental prices incorporated predicted energy bills, this would allow landlords with more efficient properties to charge more rent,²³ increasing the incentive for landlords to invest in energy efficiency measures.

²⁰ Policy Connect (2016) *Warmer & Greener: A guide to the future of domestic energy efficiency policy*

²¹ Policy Connect (2016) *Warmer and Greener*

²² EST (2011) *Trigger points*

²³ Policy Connect (2016) *Warmer & Greener*

Regulatory requirements

Regulatory drivers such as Minimum Energy Efficiency Standards (MEES) targeted at landlords are an important 'stick' to drive greater retrofitting in the private landlord market. There are an estimated 280,000 privately rented domestic properties in England and Wales with an EPC F or lower,²⁴ but by April 2018 no buildings of that standard may be let on a new tenancy.

MEES must be implemented more stringently in both domestic and commercial properties to be effective.

Government is currently consulting on capping the cost to landlords of meeting regulations at £2,500, which would result in nearly 50% fewer homes being insulated than at a £5,000 cap.²⁵ An industry survey found that 56% of energy efficiency suppliers and consumers felt that there were too many exemptions to MEES.²⁶ The industry expects these regulations to be tightened into the 2020s, possibly preceded by a review of the regulation in 2020.

A clear roadmap and communications strategy from government is needed to drive engagement with MEES, to ensure landlords are aware of regulations and feel there is a credible threat of enforcement. MEES should also be tightened over time and the price cap should be raised to £5,000 to deliver real improvements.

HOW TO DRIVE THE MARKET

The Clean Growth Strategy sets an 'aspiration' for as many homes as possible to be at least EPC C by 2035 where practical, cost-effective and affordable. An aspiration alone is not strong enough to drive significantly higher investment. As such, **this should be strengthened to a firm target, with government publishing further policy details on how to achieve that target** and setting out how it defines 'practical, cost-effective and affordable'. A robust target will establish a strong market signal, encouraging developers and the supply chain to upskill and deliver.

The introduction of Home Retrofit Roadmaps to supplement EPC recommendations would encourage an integrated approach to retrofitting.

1. Adding value

The surest way to drive demand for energy efficiency is for it to be reflected in the value of a home. **'Adding value' is in the top three reasons for home renovations, but currently only 1/3 of homeowners are motivated to invest in energy efficiency to increase the value of their home.**²⁷ This suggests that homeowners do not view energy efficiency measures as adding value to their homes.

²⁴ BEIS (December 2017) *Domestic private rented sector minimum level of energy efficiency consultation*

²⁵ Ibid

²⁶ BNEF (January 2018) *Energy Efficiency Trends Vol 21*

²⁷ EST (2011) *Trigger points*

Additional research on whether there is a correlation between house value and operational efficiency would be helpful to establish this link. 90% of consumers and suppliers surveyed by Bloomberg New Energy Finance agreed that making EPCs reflect real world performance should be a priority for government²⁸ and this would be a helpful step in ensuring a robust correlation.

Fiscal interventions that introduce a price premium for energy efficient homes would certainly help to drive demand (see below). The success of double glazing could provide insight: it has a high level of market penetration in spite of a fairly low cost-benefit ratio with a payback period of up to 50 years. This may be because it is often recommended by estate agents and surveyors as a way to increase the value of a property.²⁹ There are also 0% interest finance products available, marketed in hardware stores, online and through door to door marketing. Government has suggested that this reflects the value that consumers place on security, comfort, noise reduction and aesthetic properties,³⁰ though it may also be due to the creation of a norm through proactive communications.

2. Making warm the norm

Energy efficiency housing must be established as the norm in the UK. The double glazing case study shows how the creation of a norm drives demand, but extending this will require regulation as builders are currently not motivated to build more energy efficient properties as they do not command a resulting price premium.³¹ **Introducing stringent standards for new builds through a Zero Carbon Buildings standard from 2020 and a transition towards truly net zero buildings by 2030 would contribute to energy efficiency housing becoming the status quo.** As more homes become warm and energy efficient, low efficiency housing should increasingly become undesirable.

3. Fiscal levers

Ongoing trials using fiscal levers in Scotland provide an initial evidence base for the English market. For example, the EST has found that in Scotland, availability of 0% interest loans for renewable energy and energy efficiency has been met with low demand, but bolstering this offer with a cashback offer has helped to provide an additional nudge. Equity release schemes have proved more popular where they are available.³²

²⁸ BNEF (January 2018) *Energy Efficiency Trends Vol. 21*

²⁹ BEIS (September 2017) *Building a market for energy efficiency: call for evidence*

³⁰ Ibid

³¹ Willis Tower Watson (April 2017) *Real Estate Climate Risk Report 2017*

³² EST (23 June 2017) 'Clean Growth Plan: Every householder needs help to make their home warmer'

Home Energy Efficiency Programmes for Scotland (HEEPS) equity loan scheme

The HEEPS: Equity loan scheme is a Scottish Government pilot programme which aims to give homeowners and landlords access to funding to make improvements to the energy efficiency of the property and repairs to the fabric of the building. Funding takes the form of an equity loan and allows homeowners to borrow against the value of their home.

Funding is available for energy efficiency, renewable energy installations and repair works, but at least 55% of the cost of the work must go towards energy efficiency improvements. This 55% can include energy efficiency measures such as a new boiler, insulation or double glazing but also renewable technologies and repairs which reduce heat loss through the building fabric and/or reduce damp.

Although the loan is secured against the borrower's home, there are no ongoing repayments and the loan will generally only be repaid when the property is sold. The maximum loan value is £40,000 but cannot be more than 50% of the property's estimated market value. The homeowner must also retain a minimum of 30% equity in the property. The repayments are based on the equity stake the Scottish Government takes in the property and its value at the point of repayment. A cap is also applied to the amount to repay to ensure applicants who see a sharp rise in their property value will not be unduly penalised.³³

The introduction of an adjustable stamp duty rate tied to energy performance would send a signal to the housing market and begin to shift preference towards buying more energy efficient homes. Adjustments applied as a reduction on more efficient properties and an increase on less efficient homes would help this measure to be cost neutral to the Treasury. This may help introduce a price premium or 'saleability' for more energy efficient houses, so efficiency improvements become standard for homeowners seeking to improve the value of their property. According to the UK Green Building Council, a variable Stamp Duty based scheme could deliver between 135,195 and 270,402 additional retrofits per year, with annual carbon savings of between 208,538 and 417,088 tCO₂.

Such a scheme could also contribute £404m-£807m to GDP a year with a near zero annual direct cost to government.³⁴

Moreover, it would send a clear market signal that government is committed to driving energy efficiency. Anecdotal evidence from discussions relating to the LENDERS project (see below) suggest **a number of major lenders would be more inclined to factor energy performance into affordability calculations if there was a clear move from government which signalled the link between the property market and energy efficiency.**³⁵

Government should pilot fiscal incentive schemes, including stamp duty adjustments, equity release and cash back offers to find the most effective mix of levers.

³³ <http://www.energysavingtrust.org.uk/scotland/grants-loans/heels>

³⁴ UKGBC (July 2013) *Retrofit incentives: Boosting take-up of energy efficiency measures in domestic properties*

³⁵ UKGBC (January 2018) *Building a market for energy efficiency consultation response*

4. Supporting green mortgages and loans

Evidence has shown that the majority of homeowners pay for home improvements from savings (79% in a 2011 study, versus 10% who plan to take out a bank loan and 10% who plan to use a mortgage extension).³⁶ This suggests that green mortgages or loans to fund home improvements do not align with existing consumer behaviour. However, there is around £127bn of mortgage lending in the UK each year³⁷ and as buying a home is a key trigger point for property improvements, capitalising on this opportunity could unlock a significant volume of investment. The most common rationale for green retail products is that increased energy efficiency results in lower risk of defaulting on a mortgage or more disposable income thanks to savings through energy bills.

Green mortgages

There are several initiatives in Europe seeking to establish a market for green mortgages. The European Mortgage Federation (EMF) and European Covered Bond Council (ECBC) have established the Energy Efficiency Mortgage Action Plan (EeMAP) to create a standardised energy efficient mortgage based on preferential interest rates for energy efficient homes and/or additional funds for retrofitting homes at the time of purchase.³⁸ This work may result in reduced capital requirements, allowing more investors to become involved.³⁹

In the UK, the LENDERS project demonstrated that it is possible for mortgage lenders to make use of better energy performance estimates to justify higher lending amounts to low energy properties, as lower energy bills contribute to better mortgage affordability. In turn, this could create a virtuous circle of borrowing that both supports energy home improvement and lends new borrowers more money if they buy low energy homes.⁴⁰

Ultimately mortgage lenders themselves will have to decide whether there is a commercial case to offer green mortgages. Government recently made the EPC data available to the market in bulk which gave mortgage lenders the opportunity to do their own analysis.⁴¹

Improving the accuracy of energy performance information by moving from modelled to operational performance as the basis of EPCs⁴² will help the market refine their analyses and improve lender confidence. The Each Home Counts implementation board is now establishing a Quality Mark for installers that would instil confidence for lenders that their loans will deliver energy efficiencies and that installers hold liability if the efficiencies are not realised. Each Home Counts is also drawing up a Data Warehouse which can underpin the design, installation and quality assurance aspects of the proposed Framework; enhancing the value of EPCs as an advice tool; reducing the cost of delivering energy supplier obligations; and providing a basis for macroeconomic data and analysis.⁴³

³⁶ EST (2011) *Trigger points*

³⁷ LENDERS core report (July 2017)

³⁸ <http://energyefficientmortgages.eu/>

³⁹ For more on capital requirements see Aldersgate Group (March 2018) *Towards the new normal: increasing investment in the UK's green infrastructure*

⁴⁰ LENDERS core report (July 2017)

⁴¹ Environmental Audit Committee (16 January 2018) Oral evidence: Green Finance, HC 617 questions 1-90

⁴² Aldersgate Group (July 2017) *Energy efficiency in buildings*

⁴³ Each Home Counts (November 2017)

Barclays green bond

In November 2017, Barclays issued a €500m green bond with proceeds allocated to the financing and refinancing of energy efficient residential properties in England and Wales, based on EPC data. It was able to do so after the Department for Communities and Local Government made all EPC data in England and Wales publicly available in 2017, which allowed Barclays to identify and map the data against its mortgage portfolio. Only properties in the top 15% carbon intensity threshold qualify for the bond.⁴⁴

Securitised products

The green mortgage market opens the opportunity for green mortgage-backed securities. As discussed in the Aldersgate Group's accompanying report *Towards the new normal*, securitisation could play a critical role in increasing the flows of private capital towards green infrastructure.⁴⁵ Dutch mortgage provider Obvion has planned a green residential mortgage-backed security to refinance existing mortgage loans with residential buildings in the Netherlands that represent the top 15% of energy performance, or which have achieved at least a 30% improvement in energy efficiency, based on Dutch Energy Performance Certificates.⁴⁶ In the UK **this can be supported by government with a standardised framework for green mortgages** which will allow multiple green mortgages to be bundled together more easily.

Energy efficiency loans

While green mortgages can boost desirability of energy efficient homes, they should be accompanied by low interest energy efficiency loans to fund retrofits. As noted above, home improvements are usually paid through savings rather than loans, so there must be a concurrent effort to drive demand for energy efficiency.

The 2011 Green Deal loan was launched by government to pay the upfront cost of energy efficiency installation, with the loan plus interest paid back through the property's electricity bill. This was unsuccessful, partly due to the interest rate which was higher than a high street bank loan.⁴⁷ The Green Deal Finance Company (GDFC), a private company, has launched a new bond offer with the aim of raising £5m to revitalise the Green Deal offering.

⁴⁴ Barclays (September 2017) *Barclays Green Bond Framework*

⁴⁵ Aldersgate Group (March 2017) *Towards the new normal: increasing investment in the UK's green infrastructure*

⁴⁶ Sustainalytics (May 2017) *Green Storm 2017 Obvion: framework overview and second opinion by Sustainalytics*

⁴⁷ National Audit Office press release (14 April 2016) 'Green Deal and Energy Company Obligation'

GDFC intend to use the proceeds to improve marketing and communications, sign up more installers and improve the customer journey and website. They believe this will reduce the time taken to get a Green Deal loan approved and increase uptake.

As with green mortgages, better data will allow retail banks to judge whether energy efficiency loans are commercially viable. Government can support this through the improvement of EPCs, as discussed above.

Government should also consider making low cost finance or guarantees available to retail lenders, so they can pass on low interest rates for energy efficiency loans.

This makes the most of existing channels that borrowers are accustomed to and ensures that loans are commercially sound, having gone through standard lending processes. Government intervention could be limited to the short term with the aim of kick-starting a private market for energy efficiency loans, which can grow organically once consumer demand is established.

PACE

Property-assessed clean energy (PACE) is a mechanism for financing residential energy efficiency in the USA.⁴⁸ Government funds the upfront cost of improvements, paid back by the property owners over 10-20 years through property tax bills. The debt is tied to the property rather than the owner, circumventing the problem of temporary property ownership and the disincentive to invest in energy efficiency if occupiers do not plan to remain in a property long enough to cover the cost. 6,000 PACE loans were securitised into a \$104m bond in California in 2014.⁴⁹

⁴⁸ <https://www.energy.gov/eere/slsc/property-assessed-clean-energy-programs>

⁴⁹ Deutsche Bank press release (18 March 2014) 'Deutsche Bank closes first residential energy efficiency retrofit bond securitization'