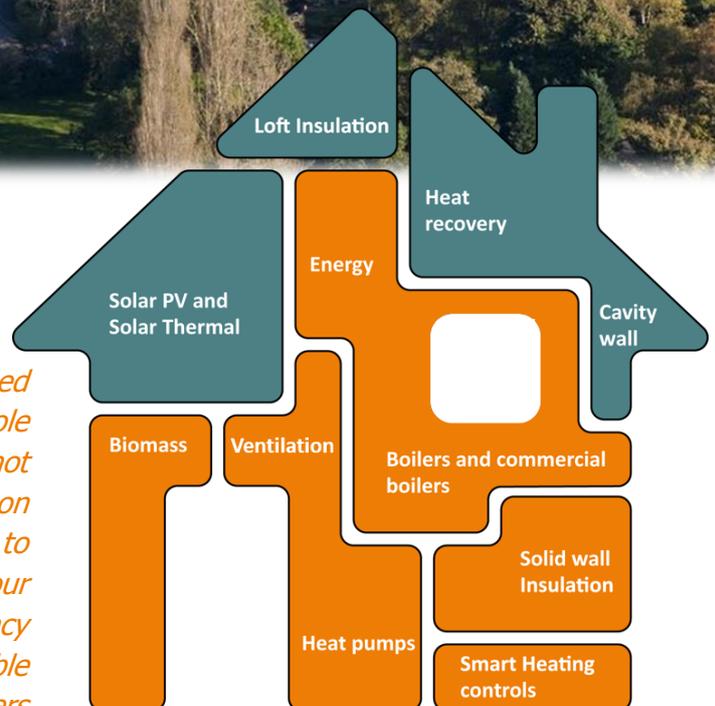


# Energy Efficiency – A Policy Pathway

*Addressing the Able to Pay Sector*

## About the Sustainable Energy Association

*The Sustainable Energy Association is a member based industry body. We are technology agnostic, taking a whole house and whole heating system approach which does not favour one technology over another, but rather focuses on the right solution. We promote holistic approaches to developing heat policy 'wrap then heat' in line with our wide-ranging membership which covers energy efficiency as well as renewable technologies and non-renewable heating technologies such as gas boilers. Our members manufacture, retail or regulate a range of technologies including:*



## Summary

The owner occupier sector has the largest proportion of inefficient properties when compared to the private rented and social sectors. The vast majority of owner occupier households are classified as able to pay. This means that they should be able and willing to carry out energy efficiency improvements, but the presence of natural consumer tendencies represent a significant barrier to uptake. Addressing these consumer tendencies through an effective policy framework is a necessary step towards improving the housing stock. This policy paper puts forward a range of options to address the able to pay sector.

Through discussions with our members and the wider industry, it is evident that sector's viability and investor confidence has become highly sensitive to decisions taken in Government and the availability of subsidy-based schemes which is neither sustainable nor helpful to the development of an open market for energy efficiency. The SEA support the Committee on Climate Change's call for the development of stronger policy frameworks to drive energy efficiency improvements and the introduction of a comprehensive set of incentives in able to pay sector<sup>1</sup>. We propose that renewing the energy efficiency policy framework is necessary in order to address the UK's poor housing stock.

The energy efficiency sector is keen to help the Government develop new, scalable interventions in the able to pay market. This paper proposes a number of mechanisms which could help to motivate able to pay consumers to take up energy efficiency measures that pay for themselves quickly, enhancing the consumer's general financial and personal wellbeing. In some cases this may mean using well-considered regulatory interventions; in others it may mean adjustments to existing policy mechanisms or spending already-committed Government money in a slightly different way.

Our policy proposals are summarised below and discussed in more detail throughout the paper. We recommend introducing regulatory policies which target homeowner trigger points to drive households to address the energy efficiency of their properties including:

- 1.** Variable Stamp duty
- 2.** Conditional Mortgages
- 3.** Council tax rebates and flexing
- 4.** Minimum Energy Performance Certificate at point of sale

We also propose a range of financial mechanisms in conjunction with the policy drivers to encourage households to carry out efficiency measures by helping them fund improvements:

- A.** Help to Buy / Lifetime ISAs
- B.** Help to Improve / zero interest loans
- C.** Equity Loans

## Contents

<b>About the Sustainable Energy Association .....</b>	<b>1</b>
<b>Summary .....</b>	<b>2</b>
<b>A 'wrap then heat' approach.....</b>	<b>4</b>
<b>The able to pay sector .....</b>	<b>4</b>
<b>Moving away from subsidy.....</b>	<b>7</b>
<b>Trigger Points.....</b>	<b>8</b>
<b>Policy proposals.....</b>	<b>11</b>
<b>Policy Drivers.....</b>	<b>11</b>
<b>1. Variable Stamp Duty.....</b>	<b>11</b>
<b>2. Conditional Mortgage.....</b>	<b>14</b>
<b>3. Council Tax.....</b>	<b>18</b>
<b>4. Minimum Energy Performance Certificate at point of sale .....</b>	<b>19</b>
<b>Policy enablers .....</b>	<b>23</b>
<b>A. Help to Buy / Lifetime ISAs.....</b>	<b>23</b>
<b>B. Help to Improve / zero interest loans.....</b>	<b>25</b>
<b>C. Equity Loans .....</b>	<b>25</b>
<b>Conclusion.....</b>	<b>27</b>
<b>References .....</b>	<b>28</b>



## A 'wrap then heat' approach

The SEA takes a holistic whole house approach starting with the building fabric. We champion 'wrap then heat', meaning that we advocate concentrating on the buildings fabric first and then looking at reducing the carbon intensity of the energy source. Energy efficiency offers a long-term solution to improving the well-being and health of a household by making it easier and cheaper to heat a home to an acceptable level of comfort; less energy wasted means lower energy bills. By addressing a building's fabric first, the household will see the benefits for decades to come, opening up the opportunity to move to other technologies in the future if they so wish.

Buildings are responsible for 37% of the UK's total greenhouse gas emissions and a significant part of these emissions are a result of space heating<sup>2</sup>. The Government faces a significant challenge to improve the thermal efficiency of the UK's housing stock which is classified as one of the least efficient in Europe<sup>3</sup>. Improving the thermal efficiency of the housing stock will reduce energy demand which will help improve the security of supplies and reduce building related carbon emissions.

## The able to pay sector

In England, 63% of households are owner occupiers<sup>4</sup> and of these 92% are classified as able to pay<sup>5</sup>. This means that the able to pay sector represents 13.2 million properties in total, or 58.5% of all English households. Almost 18% of owner occupied homes do not meet the Decent Homes Standard, the standard set for social housing<sup>6</sup>. A Decent Home meets current statutory minimum standard for housing; is in a reasonable state of repair<sup>i</sup>, has reasonable modern facilities and services and provides a reasonable degree of thermal comfort<sup>ii</sup>.<sup>7</sup> Owner occupied homes are most likely to have central heating (94%), however, there is a higher proportion of Band D and E owner occupied homes than private rented or social housing (see Figure 1). It is estimated that only 6% of owner occupied properties with solid walls are insulated which is significantly lower than the social rented sector<sup>8</sup>. These statistics demonstrate that private tenure properties are the least energy efficient homes in the UK which could be linked to social housing providers being tasked with improving their properties through the Decent Home Standard and license obligations. Targeting this group and encouraging private owners to improve the energy efficiency of these properties therefore offers a significant opportunity to improve the UK housing stock and reduce energy wastage.

---

<sup>i</sup> one or more of the key building components are old and, because of their condition, need replacing or major repair

<sup>ii</sup> This criterion requires dwellings to have both effective insulation and efficient heating.

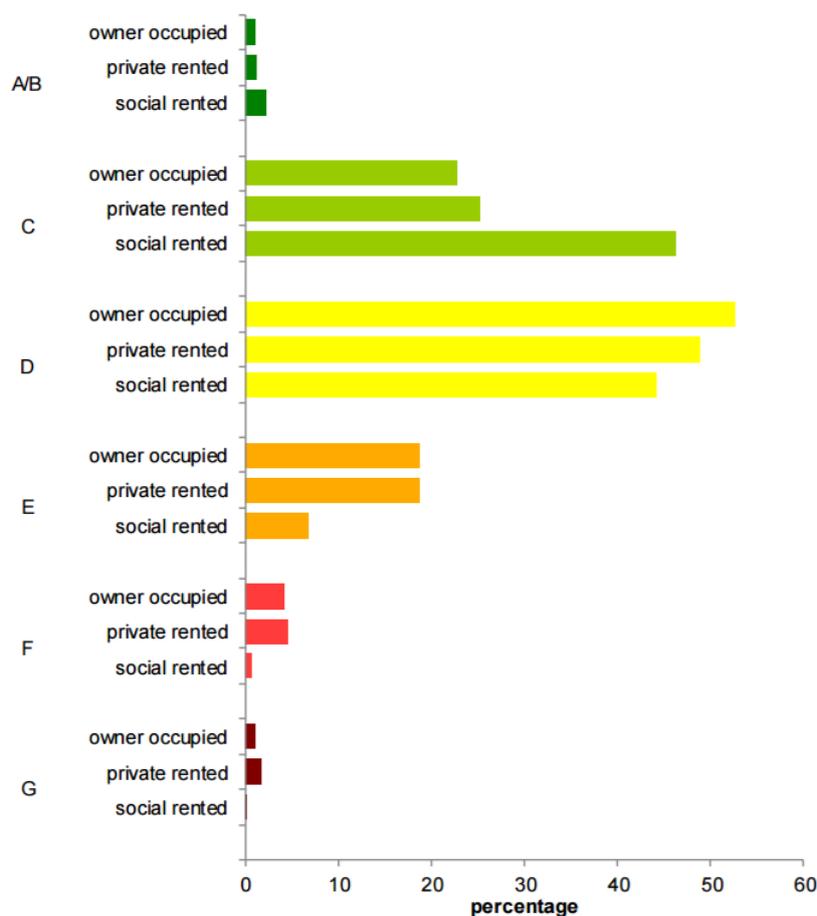


Figure 1 - Energy Efficiency Bands by Tenure (2015). Source: DCLG (2017)<sup>9</sup>

A study by Saint Gobain found that 90% of movers were concerned about the impact their new home would have on their health and wellbeing, and almost 30% were willing to pay more for improvements in this area, shown in Figure 2. Within the owner occupier sector the most common reason for making home improvements, outside of redecoration or a new kitchen and/or bathroom, were high energy bills, followed by the property being too cold in the winter. For 17% of owner occupiers surveyed, the affordability of maintaining their home, avoiding excessive heating in winter and lower energy bills were ranked as the most important priorities when it came to an ideal home environment.<sup>10</sup>



### Impact of homes on health and wellbeing

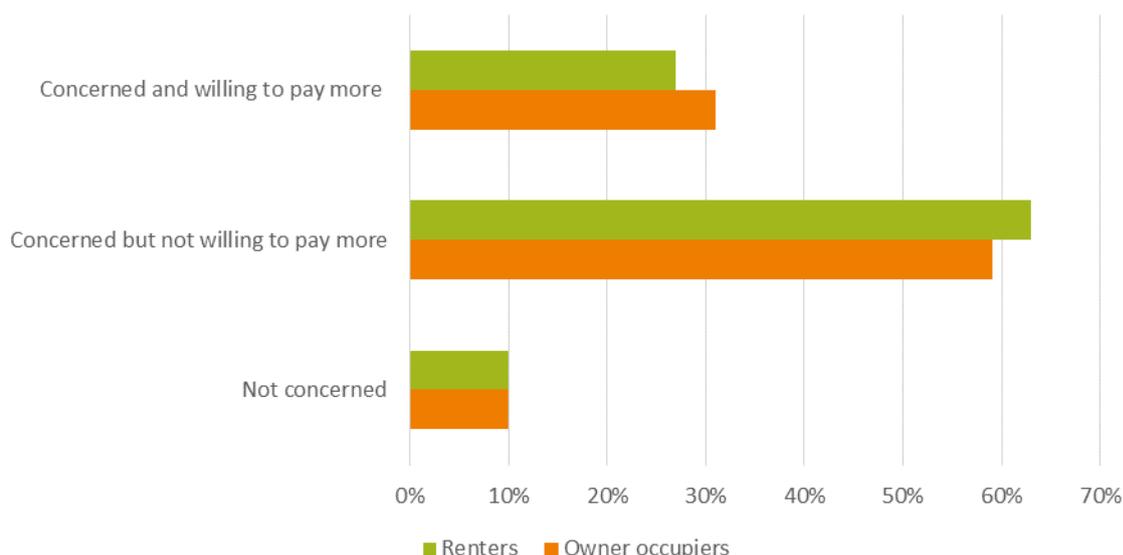


Figure 2 – Level of concern across the owner occupied and rented sector of the impact of homes on health and wellbeing. Source: Saint Gobain (2016)<sup>11</sup>

Although many energy efficiency measures are cost effective to install and will pay for themselves over time, homeowners are unlikely to implement them even if they are able to afford them. This has been linked to three natural consumer tendencies; discounting future benefits, using defaults (i.e. inertia in decision making, using habitual behaviours or pre-set options<sup>12</sup>) and being influenced by social norms<sup>13</sup>. To a consumer the costs of installation seem large and immediate in comparison with annual fuel bill savings as the benefits associated with energy efficiency improvements are accrued over a long period of time. This is a significant barrier to uptake especially given that consumers have a tendency to discount future benefits. This means that consumers will often prefer a small reward today over a larger benefit in the future. This paper looks at ways in which to reward individuals for taking action now which will help them realise energy efficiency improvements in the future. It is also important that social norms around energy efficiency are altered as behavioural economic insights tell us that people are influenced by what others do and that social norms can encourage green behaviour. Addressing these consumer tendencies through an effective policy framework is a necessary step towards improving the housing stock.



## Moving away from subsidy

Historically, Government interventions in the energy efficiency market to solicit greater consumer engagement have largely been subsidy-based which has led to the creation of a degree of subsidy-dependency in the energy efficiency market. This is evident as the sector's viability and investor confidence has become highly sensitive to decisions taken in Government and the availability of subsidy-based schemes, which is neither sustainable nor helpful to the development of an open market for energy efficiency.

In the current fiscal climate, the Government has placed a clear priority on cutting the deficit and has decided to focus the limited subsidy available for energy efficiency measures on those in the greatest immediate need, the fuel poor. Since 2012, the progress on improving the energy efficiency of buildings has stalled and the Committee on Climate Change has stressed that there is a significant policy gap for encouraging these measures in able to pay households. The Committee on Climate Change has therefore highlighted a need for a 'stronger policy framework to drive energy efficiency improvement' and a 'comprehensive set of incentives to drive energy efficiency improvements in able to pay households'<sup>14</sup>. The Conservative Think Tank Bright Blue has also highlighted a policy vacuum for incentivising the non-fuel poor to install energy efficiency measures in their homes<sup>15</sup>.

A renewal of the energy efficiency policy framework is a crucial step for the UK government in order to address the UK's poor housing stock. Closing the energy efficiency gap is a key way to ensure the availability and affordability of energy for households in the UK. The development of a robust framework is crucial to ensure that the able to pay market is incentivised to carry out energy efficiency improvements.

The energy efficiency sector is keen to help the Government develop new ideas for interventions in the able to pay market for energy efficiency measures that are market-based and scalable. This paper proposes a number of mechanisms which could be used to create greater motivation for able to pay consumers to take up energy efficiency measures that pay for themselves quickly, enhancing the consumer's general financial and personal wellbeing. In some cases this may mean using well-considered regulatory interventions; in others it may mean adjustments to existing policy mechanisms or spending already-committed Government money in a slightly different way.

## Trigger Points

Where possible the Government should capitalise on interventions already taking place including occasions when the consumer is likely to be undertaking work on their property for other reasons, or at a point of major discontinuity such as moving house or changing a heating system. At these trigger points, energy efficiency improvements can be installed at a lower cost and with less disruption<sup>16</sup>, this means that the major barriers to deployment are lessened at these points as homeowners are prepared for disruption due to property maintenance<sup>17</sup> and the presence of builders<sup>18</sup>.

### *Energy Performance Certificates*

Energy Performance Certificates (EPCs) were developed to fulfil the requirement of the Energy Performance and Buildings Directive. EPCs form a key part of many of our policy proposals as they allow for homeowners, financiers and Government to assess the current and potential energy efficiency rating of a property.

Based on the latest statistics, of the domestic properties for which EPCs have been lodged, 25% were awarded a rating of E, F or G based on their fuel costs. The proportion rated E, F or G increases when EPCs are considered in terms of CO2 emissions, with 39% of properties falling into the lowest bands.<sup>19</sup>

An EPC is intended to inform buyers or tenants about the energy performance of a building so that they can consider it as part of their decision making. The awareness of EPCs has increased over recent years, with 35% of consumers in 2014 stating that they are aware of EPCs compared to 16% in 2011. Despite this increased awareness, only 23% of householders know the EPC rating of their property.<sup>20</sup> It is important that homeowners and tenants are better educated as to the benefits of investing in or occupying a property with higher EPC ratings.

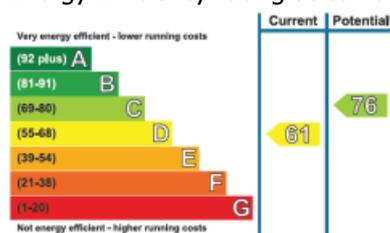
The efficiency component of an EPC considers key factors such as installed efficiency measures, boiler type, hot water tanks, radiators, window installations, and construction material. This rating is developed by the Standard Assessment Procedure, commonly known as SAP. A reduced data SAP (RdSAP) is carried out for the assessment of homes that have already been built (before the introduction of the legislation), it follows the same process as the SAP but does not use intrusive methods to ascertain the implemented efficiency measures.

The key components of the EPC that are relevant for SEA initiatives are as follows:

- Estimated energy costs of the home with potential savings:

	Current costs	Potential costs	Potential future savings
Lighting	£ 399 over 3 years	£ 252 over 3 years	
Heating	£ 3,183 over 3 years	£ 2,703 over 3 years	
Hot Water	£ 477 over 3 years	£ 288 over 3 years	
<b>Totals</b>	<b>£ 4,059</b>	<b>£ 3,243</b>	

- Energy Efficiency rating at current and potential levels:



- Recommended top actions (derived from recommended measures on page 3 of EPC), with indicative costs, saving over three years and financing availability:

Recommended measures	Indicative cost	Typical savings over 3 years	Available with Green Deal
1 Floor insulation (suspended floor)	£800 - £1,200	£ 321	
2 Low energy lighting for all fixed outlets	£35	£ 120	
3 Solar water heating	£4,000 - £6,000	£ 165	

- A star rating system summarising the home's current energy performance in kWh/m<sup>2</sup>:

Element	Description	Energy Efficiency
Walls	Cavity wall, filled cavity	★★★★☆
Roof	Pitched, 300 mm loft insulation	★★★★★
Floor	Suspended, no insulation (assumed)	—
Windows	Fully double glazed	★★★★☆
Main heating	Boiler and radiators, mains gas	★★★★☆
Main heating controls	Programmer, room thermostat and TRVs	★★★★☆
Secondary heating	Room heaters, mains gas	—
Hot water	From main system	★★★★☆
Lighting	Low energy lighting in 42% of fixed outlets	★★★★☆

Current primary energy use per square metre of floor area: 246 kWh/m<sup>2</sup> per year

The development of an extensive EPC database would allow households, the public sector and private sector to develop an integrated understanding of the state of efficiency measures and how national efficiency ratings could be improved, as well as available financing mechanisms.



There are some limitations to the current EPC system in its current state that could affect the development of SEA policy. The modelling presented in this paper uses EPCs as a reference for building performance and therefore the conclusions drawn from the analysis must be considered with the following limitations in mind.

- RdSAP ratings are currently required for houses that are not new-builds; this may devalue the efficiency rating and may not satisfy investor standards for lending.
- There are currently an insufficient number of EPCs to allow widespread assessments to be carried out (i.e. initiatives such as variable council tax).
- EPCs may not give an accurate representation of household current or projected expenditure on fuel bills as they do not consider variable external factors such as fuel prices and consumer consumption habits. This means that EPCs should not be seen, on their own, as robust assessments of a particular household's return on investment. As we explore in our proposals below, specifically the conditional mortgage, additional evidence must be considered to understand the household specific property performance if financial products are to be based on EPC assessments.
- There is a lack of consistency in EPC scores, with different assessors often producing different EPC ratings for the same property<sup>21</sup>.
- It has been highlighted that rdSAP over predicts degree days and average thermostat temperature.
- EPCs were not designed as specification tools so while the EPC may recommend a particular energy efficiency measure, it is important that a trained advisor or installer decides whether the measure is suitable for that particular home and household.

Although it is important that the above limitations are acknowledged, the EPC system does offer a generic property rating tool which gives the occupier or potential buyer a reasonable indication of how a particular property might perform. As such, EPCs do offer a simple and widely accepted tool to underpin high level policy ambitions to improve the energy performance across the housing stock.

# Policy proposals

This paper explains how a number of policies could be implemented to address energy efficiency in the able to pay sector. Firstly, four regulatory policies designed to drive households to address the energy efficiency of their properties are discussed. The policy areas are as follows:

1. Variable Stamp duty
2. Conditional Mortgages
3. Council tax rebates and flexing
4. Minimum Energy Performance Certificate at point of sale

In addition to these drivers, we recommend a range of financial mechanisms to encourage households to carry out efficiency measures by helping them fund improvements. The introduction of financial packages may be necessary to remove or minimise the upfront cost of home energy improvements and ensure that they do not compete with other household expenditure priorities<sup>22</sup>. These policy enablers are needed in conjunction with the policy drivers to increase the deployment of energy efficiency measures in the able to pay sector.

- A. Help to Buy / Lifetime ISAs
- B. Help to Improve / zero interest loans
- C. Equity Loans

# Policy Drivers

As discussed above, homeowners are unlikely to implement energy efficiency measures even if they are able to afford them. It is therefore important that the Government provides nudges to drive the uptake of energy efficiency measures across the able to pay sector.

## 1. Variable Stamp Duty

### *Implementation*

Several Stamp Duty Land Tax (SDLT) proposals have been made<sup>23,24,25,26,27</sup>. Central to these proposals is the concept that varying the stamp duty paid during the purchase of a house according to the efficiency rating of a house. This could act as a powerful incentive for upgrades of energy efficiency at a time when behavioural barriers to efficiency upgrades are lower – i.e. in the transition between consecutive occupants of the house. The intervention targets the homeowner at a time when the homeowner is engaged with the quality of the property.

The flexing of SDLT (known as Land and Buildings Transaction Tax (LBTT) in Scotland) would see houses scored based on the property's SAP rating and the tax would vary accordingly. The intervention targets the psychological pull to take action to prevent losing money through paying additional tax, known as loss aversion. The introduction of flexible stamp duty could encourage the public to buy more efficient properties. Note that this idea has been implemented in the past with the Government removing stamp duty on zero carbon homes worth under £500,000. Moreover, in Scotland councils have a duty under the Climate Change Scotland Act 2009, to set up a scheme which provides people



with a discount to their Council Tax when they install energy efficiency measures<sup>28</sup>. There is therefore already the ability to implement such a scheme. To encourage the uptake of retrofits, rebates could be offered for households that conduct EPC recommended improvements within 12 months of entry. These financial incentives will encourage home buyers to install energy efficiency measures.

In order to demonstrate how stamp duty flexing could be introduced, the SEA has modelled a scenario which flexes stamp duty based on the change in SAP score from a target score. The target used for this scenario is EPC band C (RdSAP score of 75), with the stamp duty being flexed around this point. For each percentage improvement in SAP score the stamp duty was adjusted by 1% (See Figure 3).

The UK Green Building Council has stated that using EPC bands could be a simpler metric but could introduce distortions at the band boundaries.<sup>29</sup> If EPC bands were used, a homeowner at the bottom of EPC band E could carry out a lot of work and spend a lot of money yet not move up an EPC grade, on the other hand a homeowner at the top of EPC band E could spend very little and move up a grade quite easily. Therefore, it is recommended that the policy utilises RdSAP points of 0-100 to reduce the risk of distorting the incentive to carry out energy efficiency improvements.

In this scenario, the policy is not revenue neutral given that the target EPC score is above the mid-point of the EPC scale. The Government will receive £742m additional revenue as a result of this policy which represents a 10% increase on current revenues taken from stamp duty land tax. This additional revenue should be spent on providing finance or assistance to encourage the uptake of energy efficiency measures. Possible enablers are discussed later in the paper.

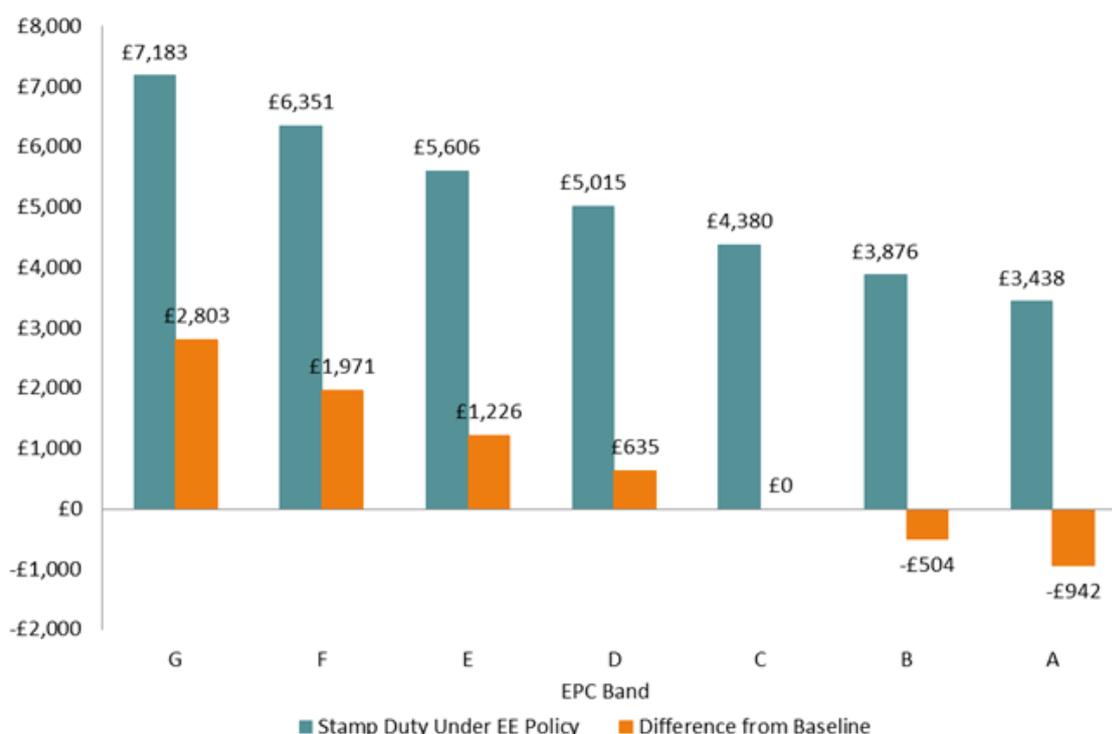


Figure 3 – Flexible Stamp Duty – adjustment by 1% per unit change in SAP



*Impact*

SDLT applies when a residential property over £125,000 is bought in England, Wales and Northern Ireland.<sup>30</sup> In 2015-16, £7.31 billion of SDLT was paid on 1.18 million residential transactions in England, Wales and Northern Ireland<sup>31</sup>. In April 2016, the Government introduced an extra 3% to the SDLT rate for purchase of additional residential property in order to support the government’s commitment to support home ownership.<sup>32</sup> In Scotland, homeowners pay Land and Buildings Transaction Tax (LBTT), the tax is progressive and is designed so that the charge is proportionate to the price of the property. The LBTT applies to properties worth over £145,000.<sup>33</sup> In 2015, there were 97,701 residential sales made in Scotland<sup>34</sup>. Table 1 (below) displays the differences between the Scottish LBTT and the Stamp Duty for the rest of the UK. This variation means that the impact in Scotland will be different to that seen in England, Wales and Northern Ireland. When the LBTT was introduced, it was estimated that 50% of household transactions would pay the tax<sup>35</sup>.

*Table 1 - Differences between property tax systems in Scotland compared to the rest of the UK<sup>36,37</sup>*

SDLT (UK exc. Scotland)	SLDT (UK exc. Scotland – additional residential properties)	LBTT (Scotland)
Up to £125,000: 0%	Up to £125,000: 3%	Up to £145,000: 0%
£125,000.01 - £250,000: 2%	£125,000.01 - £250,000: 5%	£145,000 - £250,000: 2%
£250,000.01 - £925,000: 5%	£250,000.01 - £925,000: 8%	£250,000.01 - £325,000: 5%
£925,000.01 - £1,500,000: 10%	£925,000.01 - £1,500,000: 13%	£325,000.01 - £750,000: 10%
£1,500,000.01: 12%	£1,500,000.01: 15%	£750,000.01: 12%

The average UK house price in August 2016 was £219,000, with house prices in England higher than Wales, Northern Ireland and Scotland<sup>38</sup>. Since 2013, there has been an increase in the number of transactions for households worth £125,000 or more, with the higher pricing bands seeing the greatest increase.<sup>39</sup> This suggests that the impact of this scheme could be significant. However, there is a wide variation of house prices across the UK and the policy could disproportionately benefit high income earners. For example the most expensive London borough is Kensington and Chelsea, with average house prices of £1.3m in August 2016. On the other hand, the average house price in Burnley and Blaenau Gwent was £77,000 which suggests that the policy could be a much less progressive in these areas with low house prices.<sup>40</sup> It is important to note that people buying the lowest cost homes - those on low incomes and those at risk of fuel poverty - would not be affected by this policy measure as stamp duty is not paid on these properties. To ensure that lower income households are not impacted, the Government could introduce an income assessment to ensure that those at risk of fuel poverty are not impacted by higher stamp duties.

It is estimated that the implementation of flexible SDLT and LBTT, could impact approximately 1.2 million households across the UK per year. The UK Green Building Council suggests that such a scheme could deliver between 135,195 and 270,402 additional retrofits a year<sup>41</sup>. This measure will target households at a significant trigger point for refurbishment and upgrades and therefore could have a widespread impact on the uptake of energy efficiency measures. Over time it is possible that house prices will adjust to reflect the energy efficiency rating of the property which would provide an additional motivation for buyers to opt for higher efficiency properties or carry out efficiency improvements during their time in the property in order to increase its value when they decide to sell.



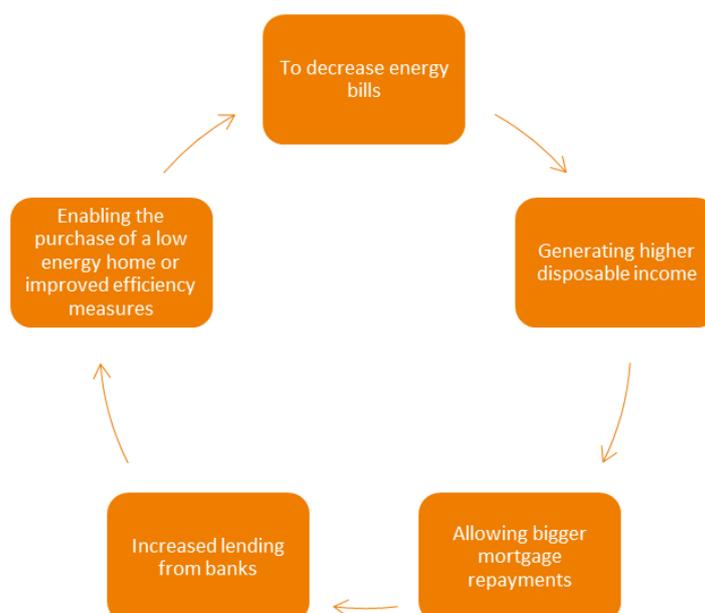
The proposal would be scoped in a manner which would be revenue-neutral for Treasury, i.e. reduced tax income raised from efficient houses would be sourced from less-efficient properties. The UK Green Building Council concluded that the annual direct cost to Government of introducing variable stamp duty is near zero. As such the policy is deemed to be revenue neutral.<sup>42</sup> This policy would hinge on a SAP assessment axis, i.e. a target efficiency (SAP score) which would act as a 'watershed' at which point taxes would be increased/decreased to incentivise uptake. The target baseline efficiency level could be recalculated each year to reflect the ever improving standard of the housing stock over time and continue to provide an incentive to increase the performance of the worst homes as well as encouraging the development of high efficiency homes.

The mechanism would use the existing EPC framework and stamp duty payment instruments which should minimise the administrative burden associated with the implementation of variable stamp duty.

## 2. Conditional Mortgage

### *Implementation*

Issuing mortgages offers an opportunity for home improvements such as the installation of energy efficiency measures. A mortgage could be issued based on a property's current energy performance level, with higher mortgage offers for A-C rated properties. The Energy Saving Trust states that "since low energy homes have lower energy bills, the natural consequence is customers in low energy homes can afford larger mortgage repayments."<sup>43</sup> This means that it also advantageous for mortgage providers to lend to homeowners buying more energy efficient properties. Moreover, consumers that implement energy efficiency measures are 32% less likely to default on mortgage payments according to a study carried out by North Carolina State University; therefore banks are more likely to offer improved rates or higher debt-to-income ratios.<sup>44</sup> This model can create a virtuous circle benefitting both participants (Figure 4). The SEA recommends that the Government mandates the inclusion of energy efficiency in the mortgage application process to ensure that those buying better performing properties are rewarded for doing so.



*Figure 4 - Virtuous Circle Model to Encourage Consumer Uptake of Conditional Mortgages*

The introduction of energy efficiency conditional mortgages should encourage homeowners to either look for a more efficient property or undertake energy efficiency improvements in order to reach a specific threshold and gain access to better mortgage rates. To ensure that home buyers are undertaking energy efficiency measures at point of purchase, the Government could require mortgage providers to include efficiency improvements as part of their mortgage offer.

The ability to get a better mortgage rate based on the EPC of the property will raise awareness of efficiency and increase the uptake of improvements across owner occupied properties. Potential homeowners may begin to seek out properties with better energy efficiency ratings thus increasing public awareness. It will therefore become common practice for home buyers to assess the efficiency of the property prior to engaging in negotiations which will encourage sellers to address the performance of their property providing a driver to improve the efficiency of the building and heating system prior to putting it on the market. Given that the demand for efficient properties will increase, they should be valued more highly. This could also mean that some buyers opt to purchase cheaper inefficient properties and refurbish them to achieve a better EPC rating which could improve their mortgage offers.

Mortgage lenders could offer better rates on the condition that improvements are made which would incentivise post-sale refurbishments. In most cases, a mortgage pre-approval application will be marked as 'approved with conditions'. Adding energy efficiency improvements to the conditions on a mortgage should not be overly burdensome as buyers must already meet a range of conditions in order to get loans approved such as carrying out surveys and inspections or completing repair work.

The Parliamentary Office of Science and Technology has recently outlined a number future energy efficiency policies including reforming mortgage eligibility tests<sup>45</sup>. Mortgages are a commercial offering and therefore any changes to lending criteria to reflect a property risk would need an evidence base to show there is a causal link between lower default risks and more efficient homes. Theory suggests that



those with lower energy bills are less likely to default, however further research may be needed to build an evidence base to support the change.

The LENDERS project<sup>iii</sup> has begun to demonstrate that more accurate fuel cost estimates can be used by mortgage lenders when calculating monthly loan repayments. The LENDERS approach enables mortgagors to better predict the amount homeowners are able to afford to pay and in turn leads to the capacity to deliver higher capital lending amounts. The approach should help stimulate awareness of energy efficiency and the benefits of buying a greener home. The project has built an evidence base but the Government should look to expand the research to assess the impact of introducing conditional mortgages on consumers and mortgage lenders.

*Impact*

Among owner occupiers, there are more outright owners (33%) than mortgagors (30%) on average across England<sup>46</sup>. The proportion of outright owners is expected to increase to 35% by 2025 (see Figure 5).

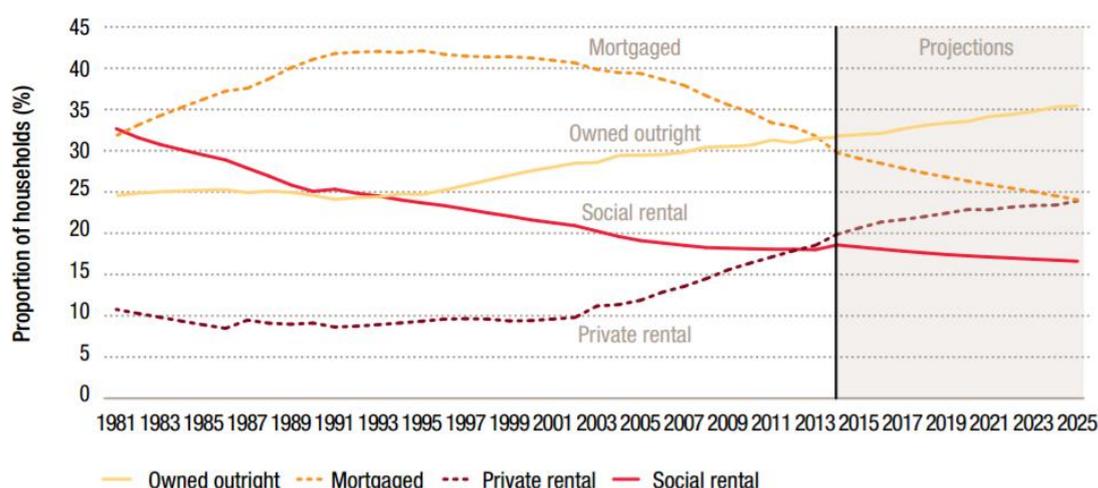


Figure 5 - Projections for UK housing tenure, share of households. Source: PwC (2015)<sup>47</sup>

Over recent years there has been a marked decline in the proportion of sales by existing mortgaged homeowners with only 35% of all sales in 2014 attributable to this group (half the level seen in 2007).<sup>48</sup> These trends could be linked to higher moving costs and an inability or unwillingness to finance a home purchase<sup>49</sup> and an increasing proportion of homeowners that are over 60 years old (see Figure 6). Homeowners in the higher age band are more likely to have paid off their mortgages<sup>50</sup>.

<sup>iii</sup> <http://www.epcmortgage.org.uk/>



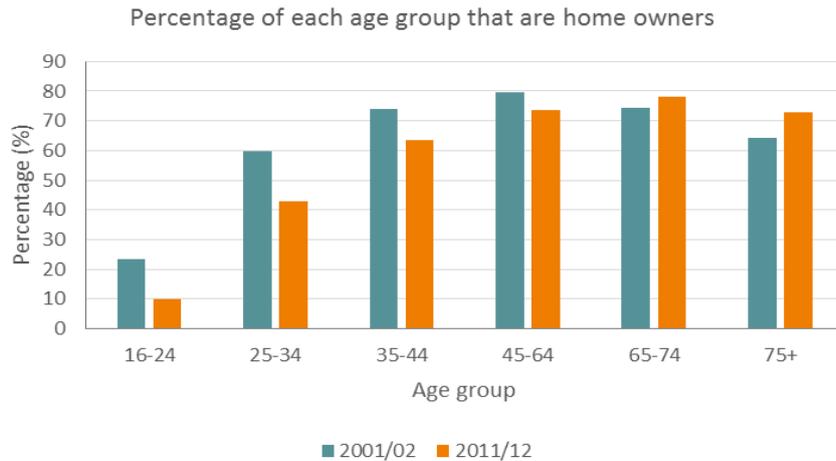


Figure 6 – Percentage of home owners by age band. Source: ONS (2014)<sup>51</sup>

Due to the declining numbers of first time buyers and young home owners, and the rise of 'Generation Rent', it is likely that this policy will impact those aged 40 or above. However, the Government's recent drive to encourage more first time buyers onto the housing ladder may mean that younger homeowners could be impacted. Figure 7 shows that the number of mortgage loans for first time buyers been decreasing since 2001, yet since 2011 the rate has begun to increase. If the upward trend continues, this policy has the potential to drive a societal shift in preference across all age bands towards better performing properties.

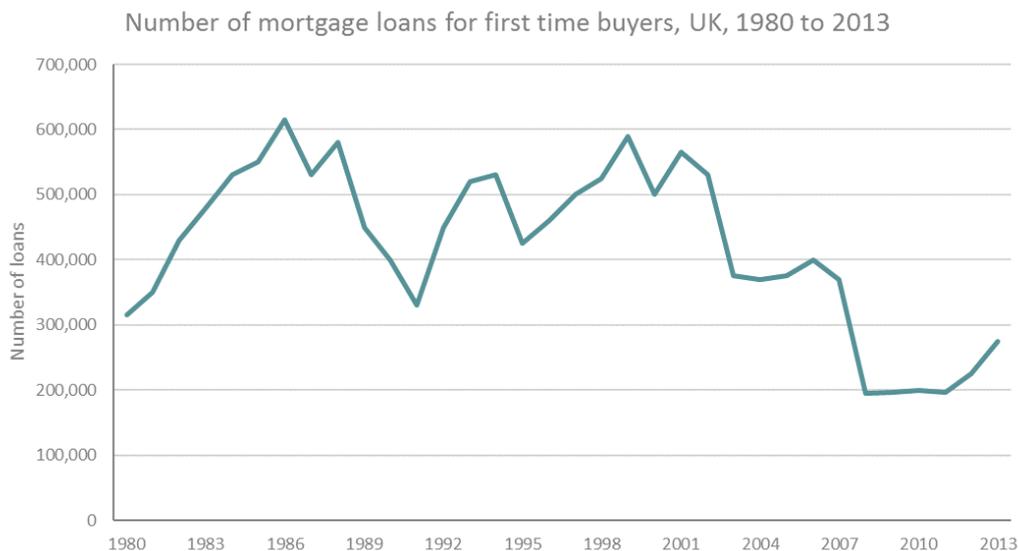


Figure 7 - Number of mortgage loans for first time buyers in the UK (1980 to 2013). Source: ONS (2014)<sup>52</sup>



### 3. Council Tax

#### *Implementation*

Council tax could be used to encourage retrofit either by linking rates to the energy efficiency of a property, or alternatively by offering a rebate when measures are installed. The former, while placing an extra administrative burden on councils and requiring all affected properties to have a valid EPC in place, could have a very significant impact on the market while retaining revenue neutrality for Government. The latter rebate scheme would be less disruptive, though it would be likely to have a smaller impact on demand and would have a potentially large impact on council budgets.

How much council tax paid is dependent on:

- The valuation of house (which band A-H it falls into)
- How much the local council charges for this band
- Whether householder is eligible for any discounts

Two different incentive methods have been hypothesised and will be explored in this section. They will be referred to as Mechanism 1 and 2 respectively.

- Mechanism 1: An increase or decrease to council tax is issued depending on households EPC efficiency rating in regards to a dynamic efficiency baseline level that changes to reflect average efficiency rating within a district. An increase or decrease to council tax payment is issued depending on whether a household installs a cost-effective measure from their EPC.
- Mechanism 2: A one off council tax rebate is offered if a cost-effective measure from the EPC is implemented at a rate proportional to the cost of the measure to household to help cover the upfront cost of installation.

Both mechanisms offer the consumer the possibility of decreasing council tax outgoings. Council tax is notoriously unpopular and a reduction would likely be greeted positively by consumers. The regular payment of council tax offers consumers a constant reminder of savings that could be made by reducing outgoing payments for council tax as well as for energy bills.

Mechanism 2 is likely to encourage some uptake of energy efficiency measures, however it will have less of an impact than mechanism 1 as it only provides a short term incentive for uptake. However, given the high upfront costs associated with some energy efficiency measures, mechanism 2 may be more popular among homeowners as they are able to recoup more of the capital cost.

Mechanism 1 should encourage uptake of efficiency measures as house prices would likely increase over time dependent on the council tax savings that are achieved for a certain house. This could cause a societal shift towards valuing energy efficiency measures in our homes.

#### *Impact*

There are approximately 27.1 million households in the UK<sup>53</sup>, and the forecasted council tax bill for the 2016/17 tax year is £30.1 billion<sup>54</sup>. Council Tax Rebates would likely be progressive as council tax is applied to homes of all values. The majority of households pay council tax; full time students are excluded and reductions are available for single adult occupancy households. Households that are

exempt from council tax payments would therefore not be incentivised by the mechanisms. It is suggested that those deemed as fuel poor could be exempt from council tax increases to ensure that they are not exposed to higher costs. Despite these exclusions, the widespread nature of council tax means that if a variable council tax policy was implemented, there would be the ability to have a large scale impact on household energy efficiency. The rebate payment could be proportional to the council tax banding, this would promote the equality of the scheme.

A report analysing retrofit incentives by the UK Green Building Council suggests that a fiscally neutral variable council tax scheme similar to Mechanism 1, could lead to between 517,000 and 1,480,000 additional retrofits per year, this equates to a GDP benefit of £1.5bn to £4.4bn<sup>55</sup>.

This policy proposal requires that all households obtain an EPC. This may make the scheme difficult to implement given that only properties sold or rented out are required to have an EPC. However to overcome this barrier, local councils could cover the upfront costs of the EPC and reclaim these back over time by deducting them from the rebate payment.

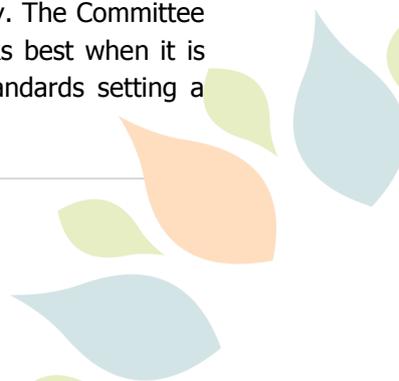
## 4. Minimum Energy Performance Certificate at point of sale

### *Implementation*

An EPC is required whenever a property is built, sold or rented. A homeowner is required to order an EPC prior to marketing a property for sale or rent. This proposal recommends that a minimum EPC level is set in order for a homeowner to sell their property. It is a regulatory intervention that has been highlighted by the Parliamentary Office of Science and Technology as an option to improve our housing stock<sup>56</sup>. It is worth noting that this proposal could be implemented alongside the other policy drivers. A similar policy already exists for the Private Rented Sector (PRS) which requires all rented properties (domestic and non-domestic) to meet a minimum EPC rating of E. The Minimum Energy Efficiency Standard (MEES) will take effect from 1<sup>st</sup> April 2018 for new lets and tenancy renewals and from 1<sup>st</sup> April 2020 for existing tenancies.<sup>57</sup> In Scotland, the Energy Efficiency Standard for Social Housing (ESSH) has shown that increased energy performance can reduce fuel poverty and transform cold and damp houses into warm and dry homes<sup>58</sup>. In order to encourage homeowners to carry out energy efficiency improvements and to allow them to realise the same benefits as those seen in social housing and the PRS, it is recommended that the Government sets a minimum EPC rating at the point of sale for domestic properties.

The Government's Fuel Poverty Strategy proposes to achieve a minimum energy efficiency standard of band C by 2030 in fuel poor households. It is worth noting that although the current occupants may not be classified as fuel poor, the poor energy efficiency of the property could increase the risk of the new occupier falling into fuel poverty, it is therefore important that all domestic properties are brought up to the same EPC rating over time.

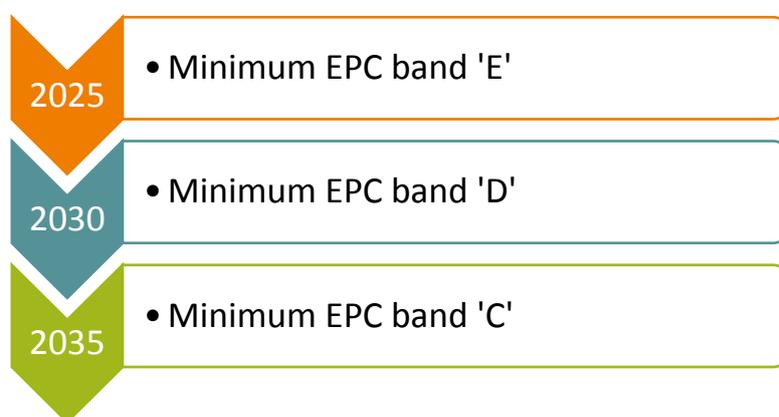
This is a top down policy measure that will create positive change for home buyers as it will drive up the efficiency of the housing stock as a whole. The minimum EPC level could be increased over time to provide further incentives to homeowners to improve the efficiency of their property. The Committee on Climate Change report on Homes and Energy Efficiency states that policy works best when it is consistent over the long-term and recommends the introduction of regulatory standards setting a timeline for upgrading existing homes<sup>59</sup>.



Minimum standards are a key step towards increasing energy efficiency uptake. It is paramount that if the minimum EPC is to be increased, a long-term framework must be developed with clear milestones set in line with the standards seen in the other housing sectors. This should allow homeowners to plan for future home improvements and reduce the risk of carrying out incremental improvements as the requirements increase which could lead to increased costs. By establishing a clear trajectory, the Government will provide homeowners with the confidence to invest in measures and plan for the future. It is worth noting that the average period between house moves is 12-28 years.<sup>60</sup> The introduction of a clear timeline of gradual improvement could allow homeowners to spread out measures over a period of time if they are considering a move in the future or alternatively, they could carry out the measures in conjunction with other home improvements to minimise disruption.

The MEES regulations passed into law in March 2015 and set the standard for April 2018, giving landlords three years to make any necessary improvements before the minimum standard is introduced. A similar timeframe should be used when introducing the minimum EPC at point of sale regulation to allow for homeowners to carry out improvements.

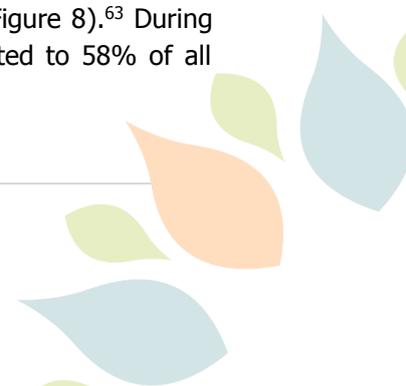
It is recommended that the Government should aim to bring all homes up to EPC band C by 2035. It has been estimated that bringing the housing stock up to EPC band C could save homeowners £416 per annum<sup>61</sup>. The schematic below outlines how the Government could increase the minimum EPC level over time with a long term objective of all houses achieving an EPC rating of C. We propose setting a minimum target of EPC band E by 2025, this will allow the financial mechanisms (as outlined in the Policy Enablers section) to become established and provide a long term signal to homeowners and industry.



It has been proposed by the Existing Homes Alliance Scotland that owner occupiers should have the option to pass the obligation to the new homeowner to allow the property to be sold quicker. This would mean that the new homeowner will have to improve the performance of the property; however the costs of meeting the obligation could be absorbed as part of the sale transaction.<sup>62</sup>

### Impact

In 2015, there were just under 1,230,000 property transactions made in the UK (Figure 8).<sup>63</sup> During this period there were 805,628 house purchase mortgages approved which equated to 58% of all mortgages issued during 2015.<sup>64</sup>



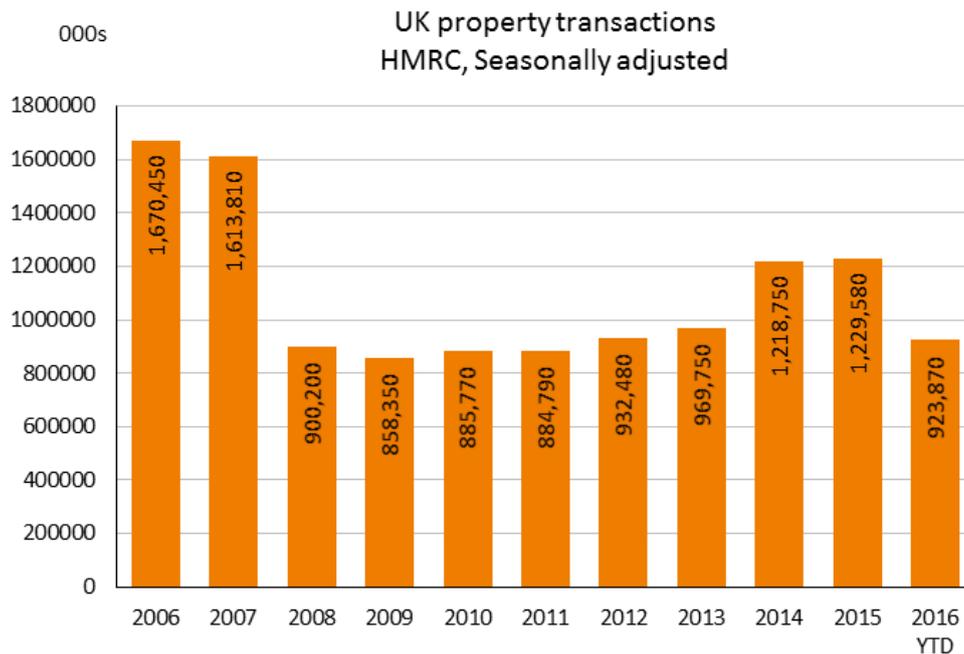


Figure 8 - UK Number of property transactions completions year to date (non-seasonally adjusted) (thousands). Source: BSA (2016)<sup>65</sup>

The following analysis assesses the potential benefits associated with bringing the housing stock up to a given EPC band, using the point of sale as the trigger point for action. As shown by Figure 9, approximately 65% of the UK housing stock are rated EPC band C or below.

UK housing stock by EPC Band

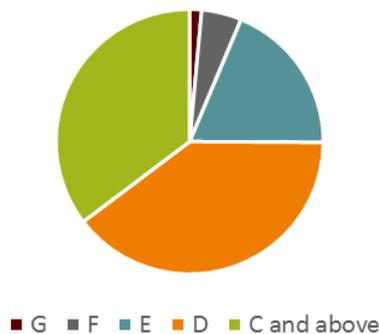
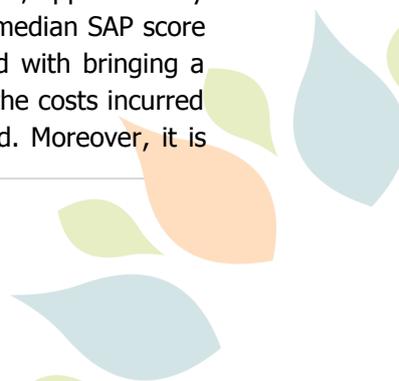


Figure 9 - Proportion of the housing stock in each EPC band (Source: English Housing Survey (2016)<sup>66</sup>)

Bringing a house up to EPC band C has the ability to provide the homeowner with significant annual heating bill savings. It is estimated that by bringing a house from EPC band E up to C, approximately £656 will be saved on annual energy bills. Savings have been calculated using the median SAP score of each EPC band. Note that the graph below does not assess the cost associated with bringing a property up to the target EPC band, further work will be needed in order to assess the costs incurred by the average property owner in order to increase the EPC up to the target band. Moreover, it is



important to highlight that homeowners are unlikely to bring their property up to EPC band C from EPC band F without carrying out a renovation project or incremental improvements over time as such the savings shown in Figure 10 are for illustrative purposes only.

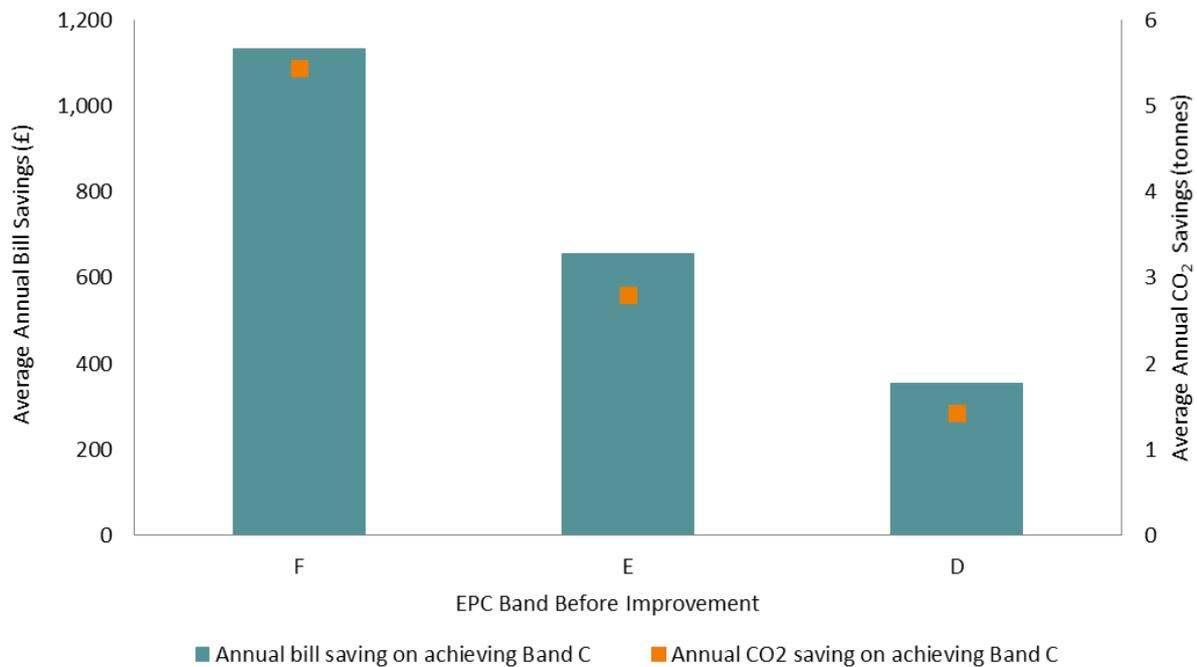


Figure 10 - Average bill and carbon saving attributed to improving the efficiency of a building to meet EPC band C



## Policy enablers

It is important to note that the availability of finance alone will not be sufficient to drive significant deployment of energy efficiency measures. The Government needs to introduce both policy drivers and policy enablers to ensure that homeowners are encouraged and able to carry out energy efficiency improvements. As highlighted by the Green Building Council, “different households will require different financial products which fit with their circumstances and requirements”<sup>67</sup>. The following section outlines three potential financial mechanisms which could be introduced alongside the regulatory nudges discussed above to overcome the high upfront costs and financial barriers faced by homeowners when considering energy efficiency improvements.

### A. Help to Buy / Lifetime ISAs

The Help to Buy ISA was introduced in December 2015 to increase the levels of home ownership by encouraging first time buyers to save by offering them a tax-free bonus when they purchase a home. Since its introduction, the Help to Buy ISA policy has been joined by a new Lifetime ISA scheme (LISA) which will launch on 6<sup>th</sup> April 2017<sup>68</sup>. The SEA developed the concept of seeking further value for money on public expenditure by adding efficiency requirements to the Help to Buy and LISA schemes.

#### *Help to Buy ISA*

The Help to Buy ISA has proven popular among first time buyers with over 500,000 people opening an account<sup>69</sup> and over 27,000 property completions being supported by the scheme<sup>70</sup>. The SEA has modelled the effects of flexing this policy to support those who adopt cost effective efficiency measures with further funding. The policy would apply to those purchasing houses EPC band D or lower. The ISA top-up could be flexed; this differential could be based on the type of property or the property’s SAP rating. Assuming that the top-up value for saving £12,000 is £3,000, the SEA has put forward two scenarios to encourage the uptake of energy efficiency measures.

The first scenario allows buyers to accept up to £4,000 to upgrade the efficiency of the property. The second scenario provides a bonus of up to £6,000. In both cases buyers are able to reject the incentive i.e. not carry out energy efficiency improvements and as a result their ISA top-up is reduced to £2,500. Figure 11 provides an illustrative example of how this policy could work using the Help to Buy framework.



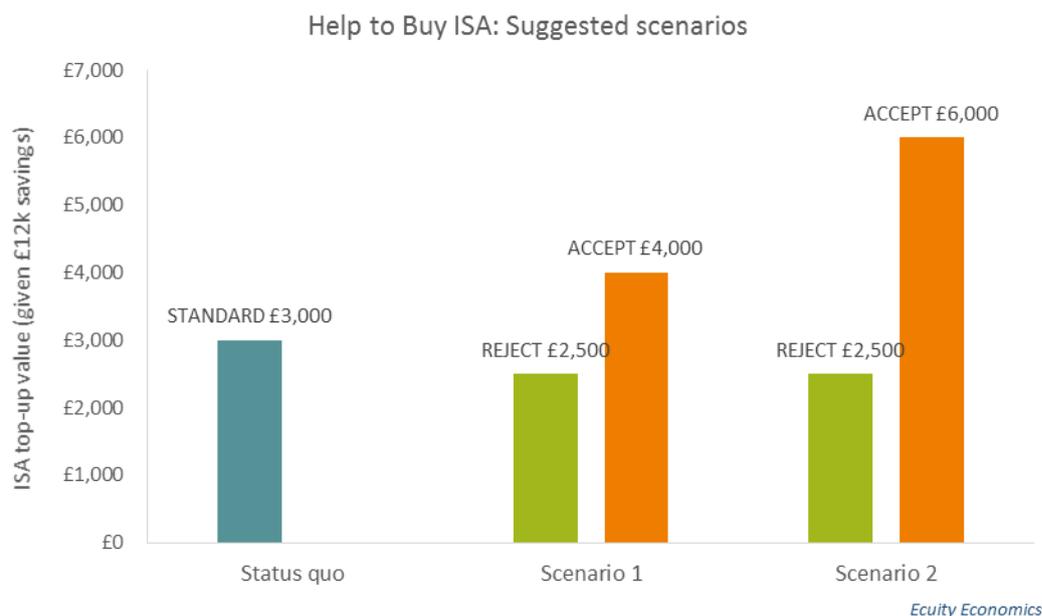


Figure 11 – Illustrative example of Help to Buy ISA: Sharpening the Incentive

The additional funds allocated to those who carry out energy efficiency measures are sourced by the marginal reduction in funds allocated to those who bought a house, but chose not to install cost-effective efficiency measures. This means that a fiscally neutral scheme could be introduced. Given a fixed budget, Scenario 1 allows for a greater level of deployment due to the lower incentive and thus lower number of 'rejects' required to fund the 'accept' top-ups. However, it is important to note that in order to encourage the uptake of measures with higher install costs in hard to treat properties, larger incentives may be needed.

### Lifetime ISA

The Lifetime ISA scheme goes further than the Help to Buy and will allow anyone between the ages of 18 and 40 to save for a mortgage or for retirement, with the Government providing an attractive annual 25% bonus on contributions made that financial year. The LISA provides an annual intervention opportunity to encourage home energy improvements with up to £1,000 a year of Government money. Whilst the 25% annual bonus would attract some modest rates of interest in a LISA, for inefficient homes that money could easily create more value by dramatically reducing energy bills.

The SEA advocates the use of this annual LISA bonus to provide a periodic incentive for the deployment of energy efficiency. Either by opening up the LISA for use on energy efficiency improvements at no additional cost (waiving the penalty charge), or by flexing the bonus as described previously under the Help to Buy ISA incentive to encourage home improvements above.

This incentive has the benefit of applying to both first time buyers and those (who may have already bought a house – owner occupiers) who are saving for retirement, which means that it could cover more houses than the Help to Buy ISA proposal above. In addition as the bonus is paid annually, there are more frequent intervention opportunities at potentially no additional cost to the consumer or Government.



## B. Help to Improve / zero interest loans

Financing energy efficiency measures is one of the major barriers to uptake. It is important to ensure that customers, without the required savings, are able to access low interest capital in order to undertake energy efficiency improvements. Retail banks and financial institutions are trusted by consumers and therefore should be encouraged to offer zero interest loans with Government backing. A number of countries have introduced interest free energy efficiency loans to overcome this hurdle. In many cases, the commercial banks are responsible for the application with Government organisations providing the finance. The majority of these loans have a duration of approximately 10 – 15 years. The Government could set a maximum interest rate to ensure that homeowners are able to benefit from cheap finance.<sup>71</sup>

- **Northern Ireland:** Businesses are able to access interest free, unsecured loans from £3,000 - £400,000 to fund energy efficiency or renewable energy projects. The finance is provided by the Government.<sup>72</sup>
- **Scotland:** Owner occupiers and private sector landlords are able to access up to £15,000 per property to carry out efficiency measures with the repayment period varying depending on the amount borrowed. The finance is provided by the Government.<sup>73</sup>
- **France:** Homeowners can take out a loan of up to €30,000 for home energy conservation and the installation of a septic tank. The loans are provided by banks.<sup>74</sup>
- **Germany:** Low interest loans provide homeowners the ability to carry out energy efficiency retrofits. The National Development Bank offers the loans through retail banks.<sup>75</sup>

Respublica, Verco and Cambridge Econometrics have conducted work indicating zero interest loans could make a powerful contribution toward generating greater uptake of efficiency measures. It has been estimated homeowners could save £203 per annum after loan repayments by bringing their property up to EPC band C using zero interest loans<sup>76</sup>. The loans could be introduced in line with a pay as you save mechanism. Bright Blue has recommend that the mechanism that underpinned the Green Deal should be maintained and that attaching the loan to the energy bill of the property remains a potential solution to overcoming the barrier of high upfront costs.<sup>77</sup>

## C. Equity Loans

An equity loan is the additional borrowing of capital as a top up to the amount a home owner borrows on a mortgage. In the UK, the most widely used equity loan is the 'Help to Buy' scheme in which the Government provides a loan of up to 20% of the house's value. The SEA recommends the introduction of equity loans to allow homeowners to top up their mortgage to carry out home improvements, including energy efficiency works.

The Scottish Government is trialling a scheme which uses equity loans to encourage homeowners and landlords to undertake energy efficiency improvements.<sup>78</sup> The Home Energy Efficiency Programme (HEEP) offers a loan of up to £40,000 that is repaid upon the sale of the property. Homeowners must spend 55% on improving energy efficiency while the remaining 45% can be used for any exterior repairs or improvements unrelated to energy, excluding new bathrooms and kitchens. The ability to use the loan for home repairs enables homeowners to improve the quality of their property as a whole, making it safer, healthier and more comfortable.

### Eligible efficiency improvements:

- Any repair that reduces heat loss through the building fabric and/or reduces damp or moisture penetration
- Gas, oil or LPG boiler
- Warm air unit
- Electric storage heaters
- Heating controls
- Radiator panels
- Insulation to primary pipework
- Repairs to existing heating systems (if deemed more cost effective than a full replacement)
- Biomass boilers and stoves
- Air source heat pump
- Ground source heat pump
- Water source heat pump
- Solar PV
- External wall insulation
- Internal wall insulation
- Cavity wall insulation
- Loft insulation
- Room in roof insulation
- Flat roof insulation
- Draught proofing
- Hot water tank insulation
- Double glazing (both new and replacement)
- Secondary glazing
- Gas connection (to the mains or a district heating system)
- External doors
- Low energy lighting
- Works that will improve water efficiency
- Solar thermal

### Eligible repairs:

- Roof structure, coverings and flashings
- Chimney stacks and heads including removal
- External wall repairs including external wall finishes
- Active and passive ventilation systems (including mechanical ventilation in bathrooms and kitchens with no windows) where evidence of damp is present
- Wet and dry rot infestations
- Works to eradicate rising and penetrating damp
- Additional works required to make good plaster and/or decoration after a repair by also be included
- Repairs deemed essential to allow an approved measure to be carried out, for example where rewiring is needed to allow an electrically powered energy efficiency measure to be installed
- Rain water goods

The homeowner then repays the loan based on the equity stake the Scottish Government takes in the property and its value at the point of repayment. Importantly, the Scottish Government has placed a cap on the repayment amount to ensure that applicants who see a sharp rise in their property value are not unduly penalised.

It is suggested that homeowners should be able to access an equity loan at any time during the ownership of a home to allow improvements to be made prior to marketing a property for sale or as the need arises e.g. when repairs are required or during refurbishment. If the above policy drivers are introduced, the loans will provide homeowners with the ability to finance efficiency improvements in order to meet regulatory requirements such as minimum EPC ratings. The SEA therefore recommends that the UK Government assesses the feasibility of introducing a loan scheme similar to the pilot currently being trialled in Scotland. The financing mechanism should be designed so that it does not affect an individual's credit rating to ensure that the financing does not affect the ability of owner occupiers to borrow to pay for new kitchens, extensions, or other improvements.

## Conclusion

The able to pay sector represents 13.2 million properties which equates to 58.5% of all English households, however many of these are classified as hard to treat or thermally inefficient. It is widely accepted that homeowners are unlikely to carry out energy efficiency improvements on one's own accord due to the presence of natural consumer tendencies. This paper has put forward a range of measures to help invigorate the able to pay market and encourage the uptake of energy efficiency measures. The SEA believe that the introduction of policy drivers and enablers will form an effective policy framework to address these consumer tendencies and improve the housing stock.

The SEA assessed four key policy drivers which could be used to encourage households to improve the efficiency of their properties; varying stamp duty, introducing conditional mortgages, flexing council tax rates dependent on the efficiency of the property, and requiring a minimum Energy Performance Certificate at point of sale. These policy drivers could be introduced separately or together as they are complimentary. They should be implemented alongside a range of financial mechanisms which will enable homeowners to remove or minimise the upfront investment required to make home energy improvements. The three financial mechanisms recommended by the SEA are; Help to Buy and Lifetime ISAs, Help to Improve or zero interest loans and Equity loans.

The policy interventions assessed in this paper are market-based and scalable and will help to close the energy efficiency gap and address the UK's poor housing stock thus enabling the availability and affordability of high quality homes in the UK for years to come. It is important to note that a range of mechanisms and policy drivers may need to be introduced as different households will favour different measures based on their circumstances or requirements. The SEA calls on the Government to develop a robust framework to ensure that the able to pay market is incentivised and able to carry out energy efficiency improvements.

---

### For more information please contact:

Samantha Crichton (Policy Advisor)

[Samantha.crichton@sustainableenergyassociation.com](mailto:Samantha.crichton@sustainableenergyassociation.com)

---

## References

- <sup>1</sup> Committee on Climate Change (2016) [Progress Report to Government](#)
- <sup>2</sup> Committee on Climate Change (2013) [Chapter 3: Progress reducing emissions from buildings](#)
- <sup>3</sup> UK Green Building Council (2016) [Retrofit: Domestic Buildings](#)
- <sup>4</sup> DCLG (2017) [English Housing Survey: Headline Report 2015-16](#)
- <sup>5</sup> Department for Energy and Climate Change (2015) [“Fuel poverty: detailed tables 2013”](#)
- <sup>6</sup> DCLG (2017) [English Housing Survey: Headline Report 2015-16](#)
- <sup>7</sup> DCLG (2006) [A decent home: definition and guidance for implementation](#)
- <sup>8</sup> DCLG (2016) [English Housing Survey: Headline Report 2014-15](#)
- <sup>9</sup> DCLG (2017) [English Housing Survey: Headline Report 2015-16](#)
- <sup>10</sup> Saint Gobain (2016) [The UK Home, Health and Wellbeing Report](#)
- <sup>11</sup> Saint Gobain (2016) [The UK Home, Health and Wellbeing Report](#)
- <sup>12</sup> Behavioural economics (2016) [Default \(option/setting\)](#)
- <sup>13</sup> Cabinet Office, DECC and DCLG (2011) [Behaviour Change and Energy Use](#)
- <sup>14</sup> Committee on Climate Change (2016) [Progress Report to Government](#)
- <sup>15</sup> Bright Blue (2016) [Better Homes](#)
- <sup>16</sup> Committee on Climate Change (2016) [Next Steps for UK Heat Policy](#)
- <sup>17</sup> Gilchrist et al. (2014) [Home energy efficiency – review of evidence on attitudes and behaviours](#)
- <sup>18</sup> Energy Saving Trust (n.d.) [Trigger points: a convenient truth](#)
- <sup>19</sup> DCLG (2016) [Energy Performance of Buildings Certificates](#)
- <sup>20</sup> Energy Saving Trust (2015) [Public consultation on the Energy Performance of Buildings Directive Consultation Response](#)
- <sup>21</sup> DECC (2014) [Green Deal Assessment Mystery Shopping](#)
- <sup>22</sup> Bright Blue (2016) [Better homes](#)
- <sup>23</sup> Energy and Climate Change Committee (2014) [The Green Deal: Watching Brief \(part 2\)](#)
- <sup>24</sup> Dresner and Ekins (2004) [Economic Instruments for a Socially Neutral Nation Home Energy Efficiency Programme](#)
- <sup>25</sup> Energy Saving Trust (2005) [Select Committee on Science and Technology Minutes of Evidence: Memorandum by the Energy Saving Trust](#)
- <sup>26</sup> UK Green Building Council (2013) [Retrofit Incentives](#)
- <sup>27</sup> Policy Exchange (2016) [Efficient Energy Policy](#)
- <sup>28</sup> Aberdeenshire Council (2010) Energy Efficiency Council Tax Discount Scheme
- <sup>29</sup> UK Green Building Council (2013) [Retrofit Incentives](#)
- <sup>30</sup> DCLG (2016) [Stamp Duty Land Tax](#)
- <sup>31</sup> HM Revenue and Customs (2016) [Annual Stamp Tax Statistics](#)
- <sup>32</sup> HM Treasury (2016) [Higher rates of Stamp Duty Land Tax \(SDLT\) on purchases of additional residential properties](#)
- <sup>33</sup> Revenue Scotland (2016) [Land and Building Transaction Tax](#)
- <sup>34</sup> Registers of Scotland (2016) [House Price Information: Annual Market Review](#)
- <sup>35</sup> BBC News (2015) <http://www.bbc.co.uk/news/uk-scotland-scotland-business-32129904>
- <sup>36</sup> BBC News (2016) <http://www.bbc.co.uk/news/uk-scotland-scotland-politics-30908336>
- <sup>37</sup> Scutton Bland (2016) [Stamp Duty hit on property transactions](#)
- <sup>38</sup> ONS (2016) [House Price Index: Aug 2016](#)
- <sup>39</sup> HM Revenue and Customs (2016) [Annual UK Property Transactions Statistics](#)
- <sup>40</sup> ONS (2016) [House Price Index: Aug 2016](#)
- <sup>41</sup> UK Green Building Council (2013) [Retrofit Incentives](#)
- <sup>42</sup> UK Green Building Council (2013) [Retrofit Incentives](#)
- <sup>43</sup> Energy Saving Trust (2016) [how we make mortgages go green?](#)
- <sup>44</sup> UNC Center for Community Capital (2013) [RESEARCH REPORT Home Energy Efficiency and Mortgage Risks](#)

- 
- <sup>45</sup> Parliamentary Office of Science and Technology (POST) note (2017) [Future Energy Efficiency Policy](#)
- <sup>46</sup> DCLG (2016) [English Housing Survey: Headline Report 2014-15](#)
- <sup>47</sup> PwC (2015) [UK housing market outlook: the continuing rise of Generation Rent](#)
- <sup>48</sup> Hometrack (2015) [Hometrack UK Cities House Price Index](#)
- <sup>49</sup> Hometrack (2015) [Hometrack UK Cities House Price Index](#)
- <sup>50</sup> PwC (2015) [UK housing market outlook: the continuing rise of Generation Rent](#)
- <sup>51</sup> ONS (2014) [House price index](#)
- <sup>52</sup> ONS (2014) [Declining number of first time buyers](#). Source: [Council of Mortgage Lenders](#)
- <sup>53</sup> ONS (2016) [Statistical Bulletin: Families and households in the UK: 2016](#)
- <sup>54</sup> Institute of Fiscal Studies (2016) [A Survey of the UK Tax System](#)
- <sup>55</sup> UK Green Building Council (2013) [Retrofit Incentives](#)
- <sup>56</sup> Parliamentary Office of Science and Technology (POST) note (2017) [Future Energy Efficiency Policy](#)
- <sup>57</sup> Residential Landlords Association (2016) [Minimum Energy Efficiency Standards](#)
- <sup>58</sup> The Existing Home Alliance Scotland (2016) [A Minimum Energy Performance Standard for Existing Private Homes](#)
- <sup>59</sup> Webb (2016) [Heat and Energy Efficiency: Making Effective Policy. Advisory Group Report: A report for the UK Committee on Climate Change](#)
- <sup>60</sup> Hometrack (2015) [Hometrack UK Cities House Price Index](#)
- <sup>61</sup> Verco (2014) [Building the Future: Economic and fiscal impacts of making homes energy efficient](#)
- <sup>62</sup> The Existing Home Alliance Scotland (2016) [A Minimum Energy Performance Standard for Existing Private Homes](#)
- <sup>63</sup> BSA (2016) [HMRC Property Transactions](#)
- <sup>64</sup> BSA (2016) [Mortgage approvals by purpose](#)
- <sup>65</sup> BSA (2016) [HMRC Property Transactions](#)
- <sup>66</sup> DCLG (2016) [English Housing Survey: Headline Report 2014-15](#)
- <sup>67</sup> UK Green Building Council (2016) [UK-GBC Submission to Bright Blue: Home Energy Efficiency](#)
- <sup>68</sup> HM Treasury (2016) [Lifetime ISA](#)
- <sup>69</sup> TWP Accounting (2016) [Government clarifies Help to Buy ISA scheme](#)
- <sup>70</sup> HM Treasury (2016) [Help to Buy: ISA scheme Quarterly Statistics](#)
- <sup>71</sup> GGBP (2016) [Promoting energy efficient buildings: Germany](#)
- <sup>72</sup> Carbon trust (2016) [Interest free energy efficiency loans in Northern Ireland](#)
- <sup>73</sup> Energy Saving Trust (2016) [HEEPS Loan scheme – with 25% cashback](#)
- <sup>74</sup> French Property (2016) [Interest Free ‘Eco’ Loan](#)
- <sup>75</sup> Republica (2015) [After the Green Deal](#)
- <sup>76</sup> Verco (2014) [Building the Future: Economic and fiscal impacts of making homes energy efficient](#)
- <sup>77</sup> Bright Blue (2016) [Better Homes](#)
- <sup>78</sup> Energy Saving Trust (2016) [HEEPS: Equity Loan Scheme](#)