

# Energy efficiency inquiry

## About us

The Energy and Utilities Alliance (EUA) provides a leading industry voice helping shape the future policy direction within the sector. Using its wealth of expertise and over 100 years of experience, it acts to further the best interests of its members and the wider community in working towards a sustainable, energy secure and efficient future. EUA has eight organisational divisions - Utility Networks (UN), the Heating and Hotwater Industry Council (HHIC), the Industrial & Commercial Energy Association (ICOM), the Hot Water Association (HWA), the Manufacturers' Association of Radiators and Convectors (MARC), the Natural Gas Vehicles Network (NGV Network), Manufacturers of Equipment for Heat Networks Association (MEHNA) and the British Energy Efficiency Federation (BEEF).

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## Response

### 1. Executive Summary

- a. UK energy efficiency has actually improved dramatically, previous Government policies have led to most loft and cavities in walls being filled, over 60% of homes now have a condensing boiler and finally, domestic energy consumption has fallen by 17% between 2002 and 2017.

- b. EUA believes that the focus needs to be on the remaining properties that do not yet have condensing boilers and remaining un-insulated lofts and cavities in walls.
- c. EUA believes that decarbonising fuel, such as rolling out hydrogen to replace natural gas to provide heat, should be a primary focus rather than deep retrofits as it is more practical and cost effective.
- d. EUA does not believe the current economics of energy pricing create a market incentive for reducing energy consumption. Current energy pricing does not penalise excessive usage.
- e. Special focus needs to be provided to off grid properties, and the focus should be on bio fuels such as Biopropane and Bio-oil. The role of EPCs in off grid properties also needs reviewing.
- f. Therefore our roadmap would be:
  - i. New build: set a date in the early 2020s for all new build properties to be zero carbon.
  - ii. Private rented: set a date in the early 2020s for all properties let on the market to be at EPC band C. There should be no additional financial support for landlords to meet this goal. Attention would be needed to ensure it doesn't lead to unfair rent rises.
  - iii. Social housing: set a date in the early 2020s for all properties to be at EPC band C.
  - iv. Owner-occupied: hydrogen-ready boilers to be regulated by a feasible point in the 2020s. Homeowners to be encouraged to upgrade their homes using consumer nudge techniques and support from trusted partners.
  - v. Fuel poverty: Government to focus resources on assisting those on fuel poverty. The ECO scheme should be fully funded to ensure that all homes that are in fuel poverty are upgraded to EPC band C. Government should agree the criteria that dictates the definition of practical and affordable. They should also link with other fuel poverty measures such as the Fuel Poor Network Extension Scheme delivered by the Gas Distribution Networks.

## **Overarching approach: Who should have responsibility to pay for energy efficiency? Should energy efficiency be considered a national infrastructure priority?**

2. EUA would like to start our response by highlighting that the UK has actually already seen an energy efficiency revolution take place. Since 1976 cavity wall insulation has increased from 3.8% to 69% of UK homes with a cavity. Most lofts are insulated. Since 2006 condensing boilers have gone from being in 6% of homes to being in 63%. Finally, domestic energy consumption has fallen by 17% between 2002 and 2017 despite an increase in population and households<sup>1</sup>. When reviewing energy policy and future directions we need to recognise that we have actually implemented effective policies at reducing energy consumption. The most effective have been installing condensing boilers and simple insulation measures. EUA believes that this process needs to be completed before embarking on more ambitious energy efficiency schemes. In practical terms this means ensuring all boilers are condensing by 2025 and that all practical cavities are also filled in the same timescale.
  
3. EUA understands the need to further reduce energy consumption across our economy, including amongst the existing 26 million homes. However, we are mindful that the implication of this is that sixteen thousand homes will need to be updated every week in order to reduce emissions, according to projections by the Institution of Engineering and Technology<sup>2</sup>.
  
4. On who the burden of responsibility lies with, then becomes a complex problem for both ethical and economic reasons. The most simplistic solution would be to propose that regulations are tightened for all new build properties. Private landlords and social landlords are legally required to upgrade their homes, whilst the 'able to pay' are required to fund their own improvements and those on low incomes receive a grant from the Government.

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<sup>1</sup> Ofgem State of the energy market 2018

<sup>2</sup> <https://www.carbonbrief.org/uk-homes-need-deep-efficiency-retrofit-meet-climate-goals>

5. However, EUA are uncomfortable with the expectation that privately owned homes will be forced to upgrade their homes at their own cost. Whilst reducing energy consumption is a tool for meeting our climate change goals, it is not the only method. Therefore the requirement is potentially one imposed by Government which could impact on the uptake of other measures aimed at tackling climate change. In that case EUA believes that Government has a responsibility to find a mechanism to mitigate the potential cost.

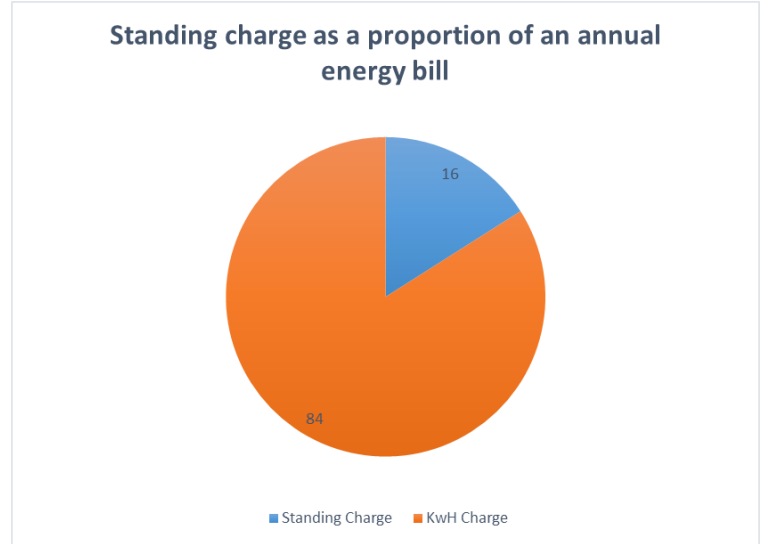
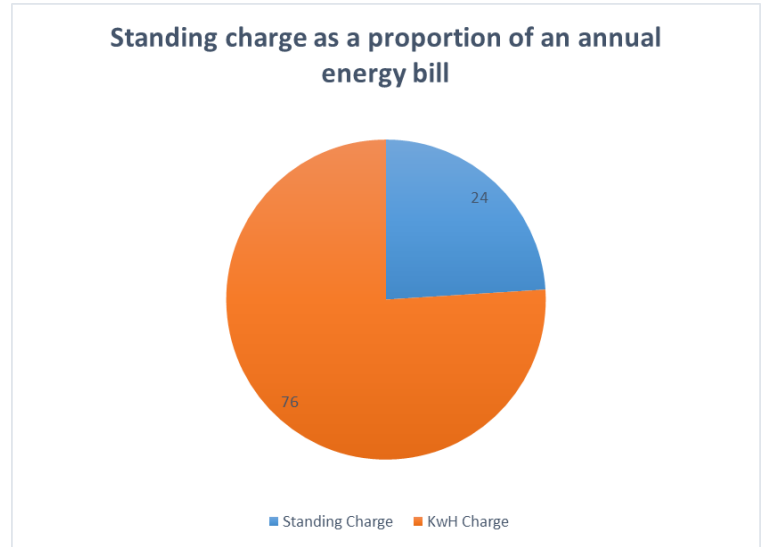
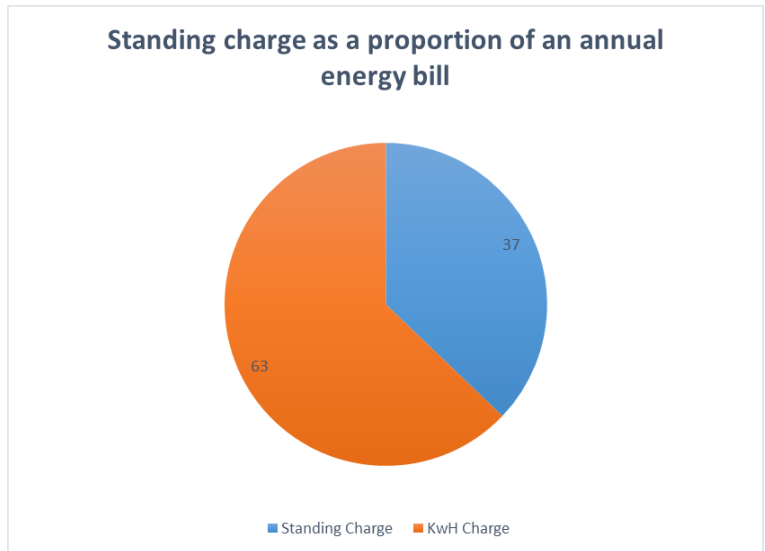
### **The cost impact for households**

6. The potential total cost of upgrading a typical home in the UK varies from a minimum of £17,000 to £85,000 per property. According to analysis from the Institute of Technology, the required level of retrofit is that all UK homes should have is:

- Solar panels
- Roof insulation
- Wall insulation
- Triple glazed windows
- Efficient heating
- Mechanical air ventilation

7. This is not only extremely expensive, but also very intrusive and disruptive. According to the same report, this work could take weeks to complete. We believe that this level of improvement would be very unpopular with most homeowners.
8. Most projections on reducing future carbon emissions assume significant improvements in household energy efficiency.
9. This demonstrates that simple insulation and a new boiler would be a sensible and practical solution for the vast majority of homes. If additional improvements were needed, as many suggest, then the costs and level of disruption become much more pronounced.

10. There are approximately 6 million homes that do not have a condensing boiler. The Energy Savings Trust calculates that homeowners in semi-detached homes could save £200 on their current gas bill by switching to a condensing boiler. The BEIS NEED Framework indicates that the installation of a condensing boiler reduces the household energy consumption by over 1000 Kwh making it more effective than cavity wall and loft insulation, Solar PV and only marginally less effective than solid wall insulation, but, at least five times cheaper. Given that it is considerably cheaper than solid wall insulation this makes condensing boilers the most cost effective energy efficiency measure. EUA strongly believes that the Government needs to make it a priority to ensure all homes have a condensing boiler as soon as is feasible. Without Government intervention there will still be homes using noncondensing boilers in the 2030s. This is because some older boilers, that we have termed zombie boilers, are simple to fix and located in hard to replace locations, like fire places. Providing little incentive to the homeowner. Our estimates indicate that there are around 2 million hard to replace old 'zombie' boilers in UK homes. Energy efficiency schemes should have a provision to ensure these homes are specifically targeted for replacement. EUA then believes that the gas used in these boilers should be decarbonised using bio gas and hydrogen to decarbonise heating in the UK to meet climate change targets.
11. EUA does not believe the current economics of energy pricing creates a market incentive for reducing energy consumption. Current energy pricing does not penalise excessive usage. The average user pays more the less they consume. This is because of the standing charge which is applied even if no energy is consumed.
12. Below is an indication of the standing charge as a proportion of an annual energy bill:

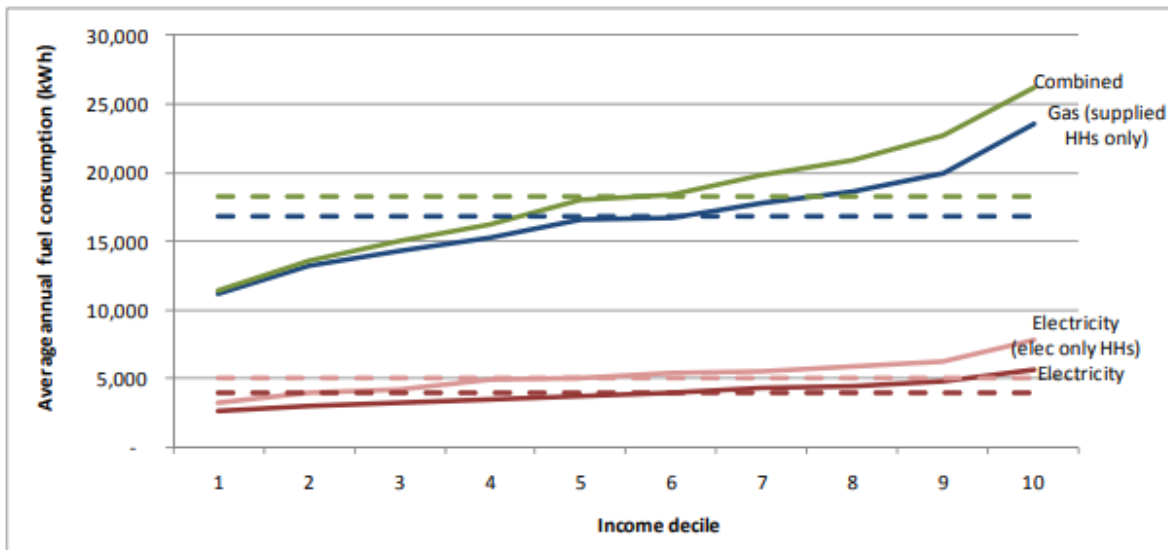


- 13. Standing charges and unit rates are from Ovo Energy Ltd, App Only Fixed v17, for a postcode in Birmingham, paying by monthly direct debit with paperless bills, correct on 16 January 2019 with Smart Meter Discount. Energy usage is based on Ofgem typical usages for low

(8,000kWh gas and 1,900kWh electricity), medium (12,000kWh gas and 3,100kWh electricity) and high (17,000kWh gas and 4,600kWh electricity) users per year.

14. As these charts illustrate higher users pay less standing charge as a proportion of their energy bill. As the standing charge is a fixed cost then the average unit cost per kWh is lower for high users.

**Figure 2. Mean annual household fuel consumption by income decile (dashed lines show the overall mean for the dataset)**



15. Additionally higher income energy users use more energy on average, as shown in the chart above. Therefore it could be argued that lower usage consumers, who also tend to be in the lower income decile, subsidize the energy of wealthier, higher users.
16. We believe that this area needs urgent reform in order to help low income bill payers. But also to create a market incentive to reduce. It seems contradictory that our current system rewards overuse.

**Energy efficiency as a national infrastructure project**

17. One of the solutions to funding this work has been to prioritise energy efficiency as a national infrastructure priority using infrastructure funding. Whilst this is a neat solution to

generate the required funds, it does overlook the fact that Governments have a poor record in delivering complex large scale infrastructure projects. This is not akin to building a new road or railway but is a project that would require at least 26 million interventions in people's homes. All whilst maintaining standards and not delivering measures for the sake of delivering measures, a feature that blighted early energy efficiency schemes.

18. EUA has serious concerns that Government would not be able to deliver this kind of scheme, that it would become exploited and ultimately fail, and at great expense to the taxpayer, which would probably erode the last bit of confidence they have in energy efficiency schemes after the debacle of the Green Deal.
19. The scheme would inevitably benefit a small number of large businesses, which would divert business away from smaller local businesses. Whilst assurances could be made for prioritising SMEs, the reality of government contracts is that the resources needed to navigate the red tape of public procurement means only larger companies can be successful, especially in this environment where many of the current participants are micro businesses of typically one employee.
20. The closest programme in scale and complexity to this would be the smart meter roll out. EUA represents smart meter manufacturers and even we would admit that the roll out has been botched which has led to delays, technical problems and an erosion in consumer support. All this for a straightforward product that essentially just replaces an old meter. Insulation and advanced energy efficiency measures will not be as simple to install and will be more complex and harder to sell to consumers.
21. This leads EUA to believe that delivering energy efficiency as a national infrastructure project will not be effective and we urge caution at adopting this as a solution to this issue.

## **Consumer Acceptance**



22. Compounding this problem is that homeowners are unlikely to want to install these measures. Most reports on this subject cite that consumer acceptance as a major barrier to uptake. Therefore we don't think that private homeowners will want to be forced to carry out work, even if it can be provided for free. This would then impact on the political will to deliver the programme. We suspect that politicians will not want to force the majority of their voters to do something they don't want to do. Given the unpopularity of this, we come to the conclusion that forcing or coercing homeowners to take up energy efficiency measures will not work and will swiftly lead to negative feedback.
23. To support this assertion, we cite the BEIS consumer attitudes tracker. The October 2018 edition showed that only 2% of respondents had ever acted on the advice in an EPC. This indicates that homeowners have very little interest in improving the energy efficiency of their homes. This is further supported by data on the number of energy efficiency measures installed every year. For fabric measures, the number of installations drops in line with reductions in financial support. This clearly indicates that if they are provided free of charge some people may take them up, but consumers are unwilling to pay for them, especially if the market does not reward high usage reduction.
24. Consumers are willing to pay for other measures such as new gas boilers or double glazing, but these have other drivers such as a need for warmth, hot water and house value reasons. EUA does not believe homeowners will rapidly move to triple glazing or heating options such as heat pumps because the upfront costs and marginal benefit are prohibitive for the vast majority.
25. A DECC paper released ahead of the Green Deal found that consumers prefer small, incremental changes over large interventions. This would be at odds with the premise of a national infrastructure type intervention, the scale of which would likely discourage consumers, especially if the bill savings were not substantial.

26. The above data shows that there are only marginal bill savings for the more intrusive and expensive measures. This will inevitably disincentivise uptake of measures. This is also a firm argument against homeowners being responsible for footing the bill of upgrading their homes. With only low savings and paybacks of very long periods, the appeal will not be there and it prove to be a financial risk for some households.
27. The other option would be to set targets for action and offer interest free or low interest loans.
28. This would be more appealing as it can be done in a piecemeal fashion and puts homeowners in control over measures installed in their property. If designed correctly it could empower local supply chains and not create negative disruption on existing businesses. If kept simple it would also be easy for consumers to understand and access.

### **Failure of the Green Deal**

29. However, the obvious counter to this is the experience of the Green Deal and the increasing amount of evidence of mis-selling and exploitation of vulnerable homeowners. The Green Deal was not a success. It led to 20,690 installed measures and 40% of those were Solar PV. This echoes the Pay as You Save pilot that also was only successful when coupled to free Solar PV.
30. EUA believes it failed on every metric. The industry had largely warned BEIS (then DECC) that the design of the Green Deal would cause it to fail, but the Department did not listen.
31. The key difference between direct subsidy schemes and schemes like the Green Deal is often simplicity. The boiler scrappage scheme was open to all heating engineers and eligibility was straightforward. If you had a G-rated boiler you were eligible for a £400 voucher. The only scheme that has matched it for speed of impact was the Green Deal Home Improvement Fund (GDHIF). This is largely because vouchers for up to £6500 were available.

32. Too often Government schemes that involve complexity, like loans, are designed with multiple layers of red tape. As a heating engineer, to be involved you had to gain additional accreditation costing upwards of £1000 per year, not including time needed for training and the extra paperwork. Homeowners had to have energy performance surveys conducted, often at their expense.
33. This is at odds with how energy efficiency has been traditionally delivered in the UK. Normally, if a homeowner wants to improve their property or install a new heating system they seek quotes and advice from a local installer, quite often this installer may have done work for them previously or are recommended by friends and family, meaning they are a trusted source of advice. The homeowner may then seek out some additional quotes for work.
34. BEIS sought to change this model with new accreditations and procedures. The problem with this approach is that it alienated large proportions of engineers and installers that are in our homes every day. If a homeowner asked about Green Deal, if the installer was not a part of the scheme they would actively encourage them to bypass it. This is evidenced by the numbers of installers actually registered with the government. Only 4% of heating engineering companies could actually carry out work for the Green Deal or the RHI. This is a very large reason why the schemes did not achieve their potential. Any new scheme has to learn this lesson. Consumer protection is important, but if it is impractical it will fail to bring those responsible for delivering it on board, causing the scheme to collapse. We believe that the Trustmark run Each Home Counts review is in danger of replicating these errors and creating an unworkable and highly bureaucratic scheme. The other major reasons why the Green Deal failed are an interest rate that was not competitive and a sign-up process that was overly complicated.
35. The main lesson that should be taken from the recently failed schemes is that consumer engagement is key. Many of the schemes failed to correctly take into account the needs of

consumers and so failed to engage. Disappointingly many of these points were raised in the pre-Green Deal pilot conducted by DECC and the Energy Saving Trust<sup>3</sup>. For example the report states that: *"BCC [Birmingham City Council] experienced a relatively high drop out between the energy survey and signing of finance agreement. There was no one reason for the drop outs but generally BCC felt that customers were concerned about entering into long term financial commitments in view of the difficult economic situation."*

36. *"BG [British Gas] felt that without Feed-in Tariffs PAYS would not financially stack-up, even over a 25 year period."*
37. *"Householders were asked, after they had been involved in the installation process, if given the option they would like to select their own installers; 43% of householders said that they would like to select the installers themselves."*
38. Given these findings, it is hard to then explain why repayment terms were set at 10 to 25 years with penalties for exiting early, why the Feed in Tariff and then Renewable Heat Incentive (RHI) was not allowed to be included in any repayment calculation and why the actions of installers were dictated by the Green Deal Provider through the ludicrously over-regulated PAS2030 system.
39. The heating industry was explicit in its advice that many of the schemes were not set up to engage consumers and subsequently this was proven to be true. Yet every new scheme since has followed a similar pattern.
40. Tied closely to the lack of consumer engagement is the failure to engage installers. Currently, there is a boiler installed every 20 seconds in the UK and homes are visited by electricians, plumbers, and builders even more frequently.

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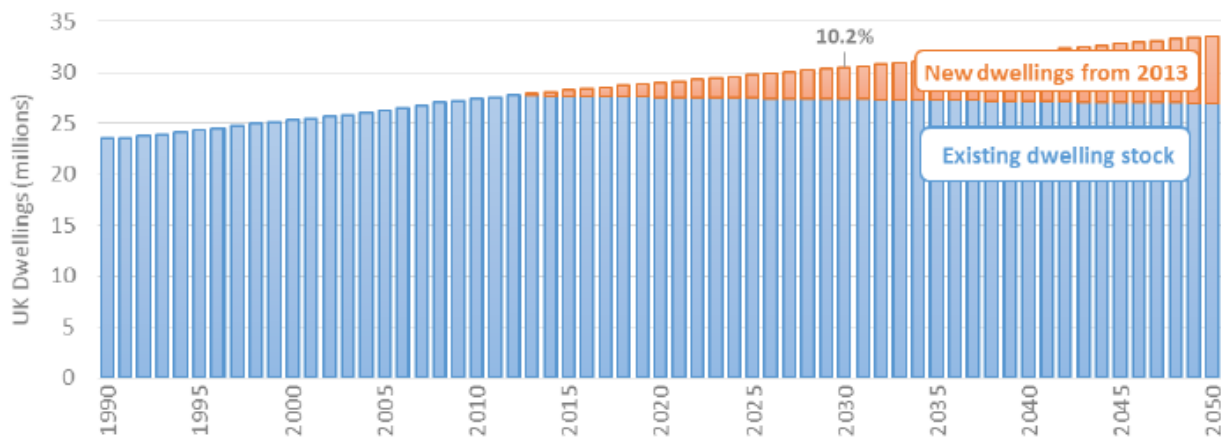
<sup>3</sup>[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/48167/2670-home-energy-pay-as-you-save-pilot-review.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48167/2670-home-energy-pay-as-you-save-pilot-review.pdf)

41. In the majority of cases, the consumer does not specify the type of appliance that is installed. For example if their heating breaks down, the brand, type and size of boiler will be chosen by the installer. BEIS's own surveys have shown that local installers are the most trusted source of advice for heating and energy efficiency, and for many people they will use the same installer over many years.
42. EUA repeatedly told BEIS that if they wanted their various schemes to succeed, such as Green Deal or RHI, then they had to engage with installers and appeal to their business models. Otherwise installers would become an 'anti-sales force'. This is what happened with the Green Deal and, to a degree, with the RHI.
43. If we want to succeed in implementing energy efficiency schemes they have to appeal to the installation community. They have to recognise the network they have and the ability to dictate what heating systems and energy efficiency products are installed. This means trusting their workmanship and be seen to engage with them as a trusted partner and not as an inconvenient aspect of a market they want to change.

### **The right measures for each home**

44. One other factor the committee need to consider is to what level homes should be insulated. Whilst we recognise that energy consumption needs to be reduced, there is a tendency in UK policymaking to set a desirable end result without taking into account the tools available to achieve this. In this case, we are working with UK homes. 80% of UK homes that will make up our housing stock in 2050 are already built:

**Figure 2.5 New homes built from 2013 will only make up 10% of the housing stock in 2030**



*Source: ICF based on historical data from DCLG<sup>8</sup> plus assumptions that (1) the same average annual net increase in the number of dwellings in the UK over the period 1990 to 2012 continues from 2013, and (2) demolition rates of 20,000 per annum.*

45. This means that the energy efficiency measures we are discussing will be installed in homes we are living in today. Many of these homes were built in a specific manner to facilitate ventilation in order to prevent damp build-up and condensation. They were also built with a degree of passive cooling for summer months. Insulation, in some cases, can counter these built design features and in doing so can lead to complications including damp and overheating. Therefore, there is a natural limit to the degree of insulation that is practical for UK homes. This requires insulation to be installed in a careful and mindful manner, treating each home individually, something that is not always evident in current installations. This should be borne in mind for any national roll out.
46. The overheating problem could become a major issue. If homes are unable to cool then homeowners may turn to air conditioning units. These consume a significant amount of energy and do so at inflexible times. This usage will coincide with times when electric cars will need to be charged. This could create a gap in energy supply at times that are current off-peak. It could also mean that the gains from insulation and energy efficiency measures are eliminated by the energy usage of cooling devices. We therefore believe that an investigation needs to take place on what the impact of overheating will be and if there is a natural limit to the level of insulation that can be sensibly installed.

47. Furthermore, for some types of homes, insulation is simply not feasible. Over 60% of houses in the UK were built prior to the introduction of thermal standards. Older homes, built before the 1920s, of which there are estimated to be 6.5 million in the UK (ONS, 2011), have solid walls. Much to the outrage of heritage groups, BEIS encourages the owners of such properties to clad the exteriors of their houses, impacting on their aesthetics.<sup>4</sup> Not only can external cladding on older homes be viewed as unsightly, it is also problematic in that the walls still need to be able to breathe.
48. It's also worth considering the fact that, in order for terraced houses to be truly energy efficient, external insulation has to be applied to multiple properties, otherwise heat can be lost through adjoining properties. This raises questions surrounding not only appearance but also practicality. If some properties on a street qualify for the ECO scheme and others do not, this produces further issues.
49. Current policies can be criticised for homogenising stakeholders, forgetting diversity in terms of housing stock and ignoring individual difference. A one size fits all policy therefore does not work.

### **Practical considerations for homeowners**

50. On a practical level, when it come to the responsibility for upgrading homes, we believe it is worth assessing the actual issues affecting each home's EPC rating. Most homes are a band D, meaning they will need to be upgraded. However, they are likely to have some level of insulation already. This means that insulation will need to be topped up. For illustrative purposes, an employee at EUA has a 1950s semi-detached house. It was recently renovated so has cavity wall insulation, a new condensing boiler and loft insulation. It also has some floor insulation on the ground floor. However, the front-facing wall is single brick and so technically solid wall and half of the ground floor is original and is therefore not insulated. The roof

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<sup>4</sup> <https://www.thetimes.co.uk/article/a-government-cover-up-on-cladding-6mbmt3nnh60>

is insulated, however the loft has been converted so the insulation above the boarded ceiling is inaccessible. The loft insulation could only be topped up by removing all items in the loft, taking up the boarding and adding the extra insulation. It may also require extending the depth of the joists. The insulation above the loft conversion would probably be impossible to upgrade without physically creating a hole in the ceiling which would be very disruptive.

51. In order to reach a required EPC level, floor insulation would therefore be the only practical indoor option for this property. However as it is for only around a third of the downstairs area, this would be highly disruptive and expensive, and may mean that new flooring is needed as well. In addition to this, the resultant savings would be negligible. Outside, the front wall would need some form of cladding, however as only one half of this wall is single brick, cladding would be complicated. If internal wall insulation was chosen as an alternative, the size of the rooms would be reduced and would necessitate plastering and decoration along with the need to re-site existing radiators.
52. The reason for this illustration is to show how a relatively typical house, with reasonable existing energy efficiency would require intrusive works in order to make it reach a desirable energy efficiency level. The employee in question would not be prepared to undertake the measures listed above, even if there was a grant for the work, as the level of disruption and low bill savings would not make it a desirable project, especially with young children. This does not include if the requirement was to change all the windows to triple glazing or install mechanical ventilation which would require installing ventilation ducting within the house.
53. We believe that the Committee need to view insulation and energy efficiency improvements on this level. It is rarely as simple as injecting a bit of foam insulation into walls or adding rolls to a loft, it is complex building work that will inconvenience home owners and will require a degree of redecoration.



54. These may seem trivial set against the serious implications of climate change, but consumers are always extremely conservative in making substantial changes unless they are personally impacted.
55. EUA believes that we can still meet our climate change goals without having to make the tough, and probably unpopular, choices outlined above and without having to decide who pays. We believe this should be done by “greening” the fuel already used in the vast majority of homes.

### **Greening existing fuels**

56. Given the extreme complexity in delivering over 26 million domestic retrofit projects, not to mention the high number of commercial and industrial properties, we believe concentrating on the fuel is more practical and achievable.
57. Extensive work is already happening on determining the feasibility of injecting hydrogen into the existing gas grid. Recent reports by Policy Exchange, Carbon Connect and the Committee on Climate Change all show that utilising hydrogen to decarbonise would help to meet our 2050 carbon reduction goals.
58. Industry believes that a combination of hydrogen and biogas can be used to effectively decarbonise the gas grid. The only change that would be needed is for the homeowner or property owner to upgrade their gas-consuming devices; we believe that this could be done in the existing replacement cycle.
59. This would take the form of regulation requiring that from a set date in the 2020s, all gas appliances are hydrogen compatible. These products are already being designed ready for mass deployment as part of the Hy4Heat programme. Indications are that they could be built at a similar price point to existing equivalents. Therefore, the consumer would not actually see an increase in costs, unlike with other invasive solutions.

60. The other angle is that this requires minimal consumer buy-in. It doesn't require new complex supply chains or complex new finance scheme.
61. The gas networks are already upgrading the gas network as part of their regulated settlement.
62. Therefore our roadmap would be:
  - *New build*: set a date in the early 2020s for all new build properties to be zero carbon.
  - *Private rented*: set a date in the early 2020s for all properties let on the market to be at EPC band C. There should be no additional financial support for landlords to meet this goal. Attention would be needed to ensure it doesn't lead to unfair rent rises.
  - *Social rented*: set a date in the early 2020s for all properties to be at EPC band C.
  - *Owner-occupied*: hydrogen-ready boilers to be regulated by a feasible point in the 2020s. Homeowners to be encouraged to upgrade their homes using consumer nudge techniques and support from trusted partners.
  - *Fuel poor*: Government to focus resources on assisting those on fuel poverty. The ECO scheme should be fully funded to ensure that all homes that are in fuel poverty are upgraded to EPC band C. Government should agree the criteria that dictates the definition of practical and affordable. They should also link with other fuel poverty measures such as the Fuel Poor Network Extension Scheme delivered by the Gas Distribution Networks.

### **Off-grid properties**

63. EUA recognises the concern that many rural off-grid properties have been largely missed by government energy efficiency schemes due them requiring a minimum EPC rating in order to qualify. Many rural off-gas grid homes have relatively low EPC ratings not only as a result of age or lack of insulation but also as a result of higher fuel prices. This has a knock on impact on the EPC banding of an off-grid property as the principal 'energy efficiency rating' measure is based on running costs and not units of energy. According to Calor Gas, the

Energy Company Obligation, a fund into which all consumers pay via their energy bills, has delivered very few energy efficiency measures in rural areas as a result of not meeting minimum EPC standards.

64. We are aware that currently EPCs are less effective in off-grid areas, especially rural ones. For these properties the cost basis of the EPC can lead the consumer to make heating choices that do not reflect carbon use. Therefore, the need to reduce carbon is being counteracted by one of the key policies designed to assist in reducing it.
65. We appreciate that it would be complicated to remove the cost element but there could be a simple solution:
66. Future energy efficiency regulations could be underpinned by kWh/m<sup>2</sup>/year rating as the principle energy efficiency rating so as not to disadvantage rural, off-gas grid homeowners.
67. Information on running costs should not be lost but provided as additional information on the EPC display certificate, not used to underpin the basis of future regulations aimed at mandating energy efficiency performance of the property – just as in the case of the non-domestic EPC.
68. We would welcome a consultation that looks into the core mechanics of the EPC that could help to mitigate effects such as those for off-grid, rural properties.
69. EUA is in full support of the need to increase the energy efficiency of homes off the gas grid. It is recognised that there can be significant conflict between the promotion of energy efficiency measures and meeting fuel poverty targets. EUA's belief is that the government should strike a balance between what is the most cost-effective and efficient methods to meet both energy efficiency and fuel poverty objectives off-grid. Given this, EUA ultimately promotes the connection of urban off grid properties to mains gas where it is feasible to do

so as the first port of call, when considering the most economically efficient and optimal means to improve energy efficiency and tackle fuel poverty. However, EUA understands that this may not always be the best option, particularly in rural off-grid properties. Given this, we believe that the fuel to these properties should be decarbonised utilising biopropane and bio-oil.

**Private rented sector: Are the Government's private rented sector regulations for energy efficiency for both residential and commercial buildings ambitious enough? Are there implementation and enforcement challenges that need to be remedied?**

70. When the Government announced proposals to introduce a landlord contribution mechanism for minimum EPC standards in the private rented sector, EUA agreed with the principle of this. However, alongside many charities, think tanks and other trade associations, we argued strongly that the cap should be set at £5,000 and were disappointed that this advice was not taken. This was because £5000 approximately equates to the cost of a new central heating system, a necessary modification in many homes in the sector. A central heating system is a far superior way for most houses to improve their EPC rating when compared with alternative measures. This is because not all homes can be fully insulated, as some houses do not have simple cavities due to the period in which they were built and solid wall insulation is in many cases impractical or prohibitively expensive.
71. A cap that fails to cover the cost of a central heating system is flawed and will not allow for a high enough percentage of houses to reach an E rating. The overarching approach should be that landlords have the responsibility to pay for energy efficiency measures on their properties, as they are providing a service. In addition to this, the private rented sector is one of the least regulated sectors in the UK and should be brought in line with others which are covered by extensive legislation. This leads us to believe that the answer to the first part of the question is, that the Government's private rented sector regulations are not ambitious enough and the cap should be set at £5,000.

72. In the UK and EU, all large appliances such as white goods and TVs are required to carry energy efficiency ratings so that customers can make informed decisions in order to reduce their energy consumption. Over time, the requirements on product manufacturers have increased whereby in many cases only A-rated products can be sold. This has, of course, had a cost implication for businesses, however they understand that to operate in this market you have to meet specific standards. EUA believes the same principal should apply to private landlords. They are putting an energy-using product onto the market and so should have to meet energy efficiency targets.