

# Designing An Effective Home Upgrade Grant Scheme

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*Tackling fuel poverty  
and decarbonising homes*



SUSTAINABLE  
ENERGY ASSOCIATION

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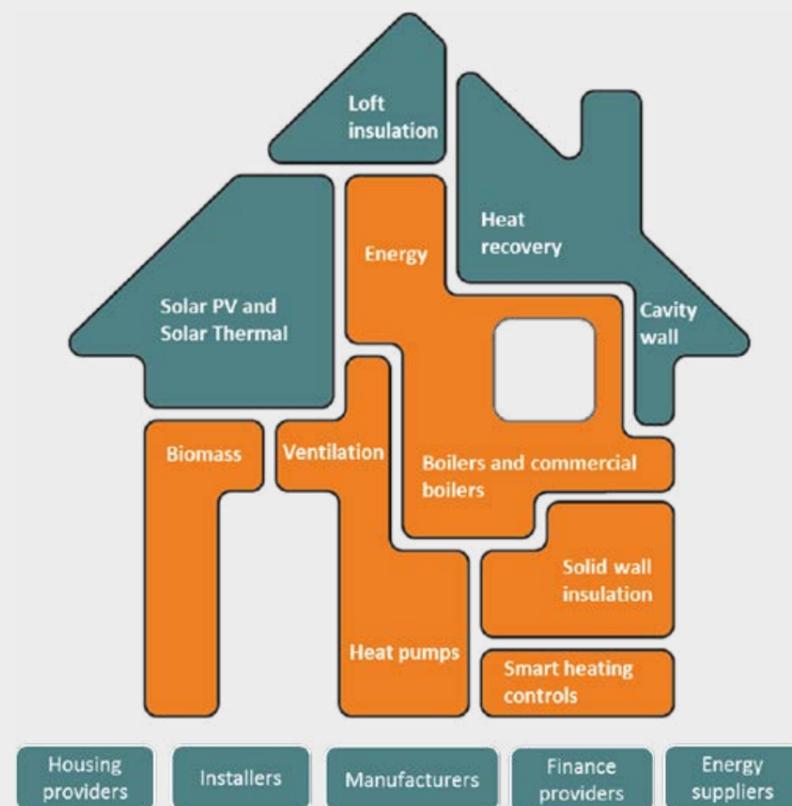
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## Acknowledgements

This report summarises feedback from Sustainable Energy Association (SEA) members and industry experts on the Home Upgrade Grant (HUG) following three workshops co-chaired by the Department for Business, Energy and Industrial Strategy (BEIS) in September 2021. These sessions were set up by the SEA and BEIS to understand views from stakeholders to help inform the scheme design for future iterations of HUG.

BEIS officials have shared their warm appreciation for the detailed stakeholder views expressed in this report and for SEA's collaborative role in coordinating the workshops, co-hosting the events, and compiling wide-ranging stakeholder opinions into a succinct report on the key findings. The many views in this report will be considered as part of the scheme design process for future iterations of HUG, which we are delighted to say can now move forward at pace following the 2021 [Heat and Buildings Strategy](#) and [Spending Review](#) confirming £950 million to HUG over the next three years from 2022/23 to 2024/25.

## About the Sustainable Energy Association



*In a world of finite resources, the Sustainable Energy Association exists to help create living and working spaces fit for future generations. Our work seeks to align the interests of business, politicians and consumers to make this a reality.*

The Sustainable Energy Association is a member-based industry body that draws upon our wide-ranging membership from energy suppliers, manufacturers, installers, housing providers and other organisations all with expertise in buildings.

We take a whole building, technology agnostic approach that recognises there is no single solution to the energy challenges faced by the UK.

We are industry leaders in energy in buildings providing evidence-based, objective policy positions shaping how we think about, generate, and use energy.

We are collaborative, constructive, and committed to achieving net zero and ensuring buildings are energy efficient, low carbon, warm, and healthy.

## Foreword | Lord Best

*President of the Sustainable Energy Association*



This very timely report from the Sustainable Energy Association (SEA) considers how best the Government's new Home Upgrade Grant (HUG) scheme can be delivered.

The HUG scheme is part of the Government's plan to tackle fuel poverty and decarbonise homes in line with the UK's net zero target. HUG is a key part of the Government's long-awaited Heat and Buildings Strategy: this sets out the target of achieving, as far as possible, EPC Band C by 2030 for fuel poor homes and by 2035 for all homes. The Strategy includes a boost in funding for both the Social Housing Decarbonisation Fund (SHDF) – by a further £800m – and the HUG scheme – by a further £950m. These additional funding commitments should assist the industry, manufacturers, and installers to plan ahead and rise to the challenge of heat decarbonisation in fuel poor homes.

In July 2021, the [Committee on Fuel Poverty](#) noted the importance of the role of local authorities and third sector bodies in confronting this challenge. The Committee highlighted the role of such bodies in identifying and engaging fuel poor homes, as well as the need for adequate resources. The report also emphasised a requirement for controls to ensure accountability and adherence to programme objectives. Equipping local authorities with the skills to improve the targeting of eligible homes will generate momentum in the delivery of home upgrade projects and set the tone for consumers and installers to engage with schemes such as HUG. Many installers were badly hit by the failure of the

Green Homes Grant (GHG) Voucher Scheme. Now support and interest for such government funded schemes must be re-ignited. Funds will be needed for educating, upskilling and increasing awareness amongst installer networks. Support for local authorities will be required to increase consumer awareness through wider engagement with their citizens. Delivery partners must demystify energy efficiency and low carbon heating measures, and work to dispel negative attitudes towards them.

This important report from the SEA sets out clear advice which follows a series of workshops on collaboration across the industry and relief of fuel poverty. This advice is applicable across all government schemes, not just HUG, and should be built into the frameworks for future area-based programmes. Policies for decarbonisation of heat require energy efficiency and low carbon heating, but they must also protect vulnerable customers. The SEA is committed to this dual agenda which aims to create zero carbon living and working spaces fit for future generations, but which also addresses the hardship of fuel poverty.

There is no single solution to decarbonise heat. Regional differences affect the cost, the carbon emissions, and the depth of fuel poverty. Area-based schemes are part of the solution, creating local decarbonisation strategies implemented by local authorities. A Climate Emergency has been declared by a multitude of local authorities: they now need the investment and tools to tackle it.

# Summary

The Government Department for Business, Energy and Industrial Strategy (BEIS) and the Sustainable Energy Association (SEA) co-hosted a series of three workshops in September 2021 to inform the policy design process for current and future iterations of HUG. The purpose of this report is to set out the Government's current thinking for the HUG Scheme and to outline the SEA's advice for a successful scheme building upon the views of key industry stakeholders involved in the workshops, including local authorities, product innovators, industry associations, installers, energy suppliers and energy efficiency and low carbon heating system manufacturers.

Below are the summarised key points of advice from industry stakeholders across the three workshops.

Advice	Explanation
<b>ENABLE LONG-TERM GUARANTEE OF FUNDING</b>	Short-term funding terminated at the last minute distorts the market; a 'stop-start' funding model has decimated the number of installers in the market. Long-term guarantee instils confidence to enable upskilling, product development service offering and innovation in the market.
<b>DEVELOP BEST PRACTISE GUIDE FOR IDENTIFYING AND QUALIFYING FUEL POOR HOMES</b>	Produced at the national level drawing upon findings from other fuel poverty schemes across the UK and internationally. This could be done via engagement workshops with stakeholders e.g., community interest companies or charities, combined local authorities, delivery partners and local energy partnerships. The guide should outline best practice to support identification and qualification of fuel poor homes which could involve a mix of developing advanced statistics, LA tax data, health, and charity referrals. The aim of the guide would be to provide a level playing field and support knowledge transfer as it is understood that targeting varies geographically and some local authorities are more advanced than others. The guidance should help inform approaches but not define a single route.

<b>PROVIDE TECHNICAL SUPPORT FOR BID PREPARATION AND SUPPORT FOR LA RESOURCING</b>	Technical support to prepare LAs well in advance of the deadline for bidding for funding. Maximum assistance in developing the bid is important for LAs, as well as funding for resources to conduct energy planning ahead of implementation of home upgrade projects. Resource funding is required to deliver ongoing support for projects and develop strong working relationships between LAs, supply chain and Regional/Local Energy Hubs.
<b>INVEST IN RE-ENGAGING INSTALLERS</b>	Following the Green Homes Grant (GHG) Scheme, many installers have informed LAs that they have no appetite for future government schemes. It has been suggested that the rollout of short-term policies into an immature market has increased installation costs for eligible measures. Re-engaging installers via organisations with larger installer networks to develop working relationships and reassure installers will be a challenge, but necessary. Supporting organisations such as the Retrofit Academy to increase the number of PAS 2035 qualified installers to deliver successful high-quality retrofits across all tenures including 'hard-to-treat' properties is key.
<b>BOOST CONSUMER AWARENESS AND DELIVER IMPARTIAL ADVICE</b>	<p>Government funded schemes must be accompanied by impartial advice to manage consumer expectations and ensure that they understand which measure/ suite of measures are appropriate, versus requesting one measure from any given government programme. A model similar to that deployed by Home Energy Scotland (HES) could be adopted where consumers can access a wealth of information easily, and communication is delivered at the local and national level. Consumers can also identify local installers, Retrofit Co-ordinators, and delivery partners. The current <a href="#">Simple Energy Advice</a> could be expanded to include this.</p> <p>There are multiple actors involved in delivering advice and demonstrations on low carbon heating, so the roles and responsibilities of each actor can become blurred. A robust advice and guidance framework needs to be established, detailing who is responsible for ongoing consumer advice across the consumer journey including post-installation.</p> <p>Advice provision needs to be developed for specialist house types that are likely to be targeted through HUG, for example, historic and conservation buildings and blocks of flats (which require whole building renovations).</p>
<b>RECOGNISE THE ROLE OF SMART MEASURES AND INNOVATION IN THE HUG</b>	The current eligible measure list proposed for HUG is limited. Battery storage, smart thermostats and thermal storage should be eligible in future iterations of HUG. Smart measures to monitor the performance of energy efficiency and low carbon heating measures should be prioritised in HUG and can derive the best outcome for the home. Investing in innovative products can increase market efficiency and enable a greater number of the workforce to develop skills for innovative technologies. Working with product innovators to enter the HUG/LAD/ECO markets will help realise government fuel poverty and net zero targets.

# 1 Introduction to the Home Upgrade Grant Policy

## Policy Landscape

The Home Upgrade Grant (HUG) Scheme was first proposed in the 2019 [Conservative Party Manifesto](#) as part of plans to tackle fuel poverty and decarbonise homes in line with the UK's net zero target.

Initially, £150m was committed to the HUG Scheme to provide energy efficiency upgrades and low-carbon heat to low-income households living in the worst performing, off gas grid homes in England between 2022-2023. In the Heat and Buildings Strategy, [a further £950m](#) has been committed for HUG. In addition, the Heat and Buildings Strategy has committed a further £800m to the Social Housing Decarbonisation Fund over three years.

HUG Phase 1 funding has been packaged with the Local Authority Delivery (LAD) Scheme Phase 3 funding as a £350m Sustainable Warmth (SW) Competition which launched in June 2021. The £150m HUG Phase 1 is intended to run from early 2022 to March 2023 delivered by local authorities (LAs). The Government is currently analysing the bids for HUG Phase 1 and LAD Phase 3 to understand trends, assess other funding requests from LAs, and identify any regional disparities.

## What is the HUG?

The HUG Phase 1 provides financial support of up to £25,000 for energy efficiency and low carbon heat measures to eligible households. A household is eligible if:

- The property is not connected to the gas grid for heating purposes
- The property has an Energy Performance Certificate (EPC) rating of D to G
- The household has an annual income of £30,000 or less



It is expected that the average cost of property improvements per household will range from £10,000-£25,000 per property depending upon the EPC rating and fuel type. The HUG Scheme promotes a fabric first principle which the SEA strongly supports, ensuring energy efficiency is addressed before the heating system is examined.

Any measures recognised within Standard Assessment Procedure (SAP) except fossil fuel heating can be installed under HUG Phase 1. Taking a fabric first approach, energy efficiency measures will be prioritised to tackle fuel poverty, lower household energy bills, and enable the home to be ready for low carbon heating.

BEIS expects that properties will be improved as outlined below. A minimum fabric performance level should be achieved for every home wherever practical and appropriate. The next step is then servicing the households' energy demand in a cost-effective way via an appropriate, well installed low carbon heating system.



Low carbon heating systems should be installed in a majority of the homes upgraded by an LA, with heat pumps considered by BEIS as the lead technology. All households installing a heat pump must be advised on likely energy bill impacts, and a technology demonstration must be given. Solar PV and double glazing are eligible under HUG but are only to be deployed after specific fabric measures like insulation (a fabric first approach) and low carbon heating systems have been installed to ensure best value for money. PAS 2035 and MCS will be mandated for HUG, and all installers must be TrustMark registered.

The projects funded by the HUG are expected to deliver a multitude of socio-economic benefits such as warmer homes, lower energy bills, reduced carbon emissions whilst supporting low-income families in the transition to low carbon heating. The scheme can stimulate health benefits from warm homes and cleaner air as well as promoting green jobs in support of the Government's green COVID-19 recovery.

Future iterations of the HUG Scheme may include a consumer access route that allows qualifying households across the country to directly apply into the scheme and mitigate a 'post code lottery' effect - where the provision of HUG projects could be concentrated in a particular area/set of areas dependant on local authority resourcing or engagement. The consumer access route would similarly target fuel poor households living in the worst performing, off gas grid homes.

## 2 Key Considerations

### Feedback on HUG Structure

#### Ancillary Measures

#### HUG Policy Proposal Summary

Whilst the HUG will predominantly fund the installation of measures, BEIS has acknowledged that administrative and ancillary works are likely to be required to fulfil the scheme's objectives. As such, the HUG Scheme permits LAs to use 15% of HUG funding to cover the costs of administration, delivery, and ancillary works aligning with the LAD Scheme administrative and ancillary works. This includes project management, reporting, governance, search costs, low-income verification, communications activities, pre-installation assessments and EPCs, pre-install building works, PAS 2035 retrofit assessor/coordinator costs, consumer advice, and after-care services so that households know how to use any new technology.

LAs will need to factor in non-capital costs required for HUG projects to meet PAS 2030:2019/2035 standards. All delivery partners will need to be PAS 2030:2019 certified and all projects must be compliant with the PAS 2035 accreditation. PAS 2035 requires 'hard' ancillary measures such as ventilation systems to be installed alongside building fabric measures. Other measures such as internet connection or loft clearance are considered 'soft' measures. The cost of soft and hard ancillary measures could be supported by the ancillary budget or the capital cost budget.

HUG funding per property can be up to £25,000 which will allow many soft ancillary measures to be addressed (capped at a total of 15% of the £25,000).

It is essential that overall works to improve the energy performance and heating of a home are undertaken as part of a whole house plan for improvement, considering condition, repairs, repointing, repair or introduction of adequate drainage, ventilation provision preparatory works, to reduce heat demands lowering carbon and running costs. Implementing such works to a poor or cheap standard will mean having to pay more later. In addition, there must be a focus on ventilation in relation to the ancillary measures, otherwise installations may lead to unintended consequences of damp, mould and consequential health problems.

Regarding the 15% cost cap for ancillary measures, some LAs might not have sufficient internal resource so would need to allocate more of the ancillary budget for project management of their HUG Scheme. LAs would need training and funding to ensure there is adequate expertise and resource to work well. This would take some of the budget away from pre-installation measures. Some pre-installation measures such as repairs to structural defects tend to be costly and complex and therefore may not be covered by the ancillary budget at all. LAs face a challenge in defining which measures should utilise the capital cost budget and which should use the ancillary budget. It has been argued the decision to allocate measures to either capital cost or ancillary budget could be made at the national level, to support cost reduction and a package solution approach for the delivery partners operating nationally across multiple LAs. This would need to be considered by BEIS.

However, it may not be possible for homes that received the maximum funding of £25,000 in one year, to receive a significant HUG grant in the next. BEIS are assessing the viability of whether upgraded HUG homes can reapply for future HUG funding. Whilst the cost cap is expected to support a wide range of measures, it is important to note that completion time of measures can vary. For example, a cost cap of up to £25,000 in some instances may not cover more than the initial measures (insulation and fabric measures) as fabric and ventilation first principles must be upheld. As such the property may also need low carbon heat installed at a later date which could be funded by HUG or another scheme. A long-term guarantee of multi-year funding may allow LAs to reassure consumers that additional vital work on their property is possible in the next round of funding. This would support a whole house approach to retrofit and allow harder to treat properties to be renovated even if the improvements need to be staged to align with funding rounds.

There is a risk that off gas grid properties that have received LAD funding under Phases 1-2 for the installation of fabric measures will not qualify for HUG funding where their EPC has been improved to a D. Homeowners may face additional remedial costs in the future, when installing a heat pump may be mandated for fossil fuel heated homes that are off gas grid. LAs may wish to use ECO/LAD funding for fabric first and HUG funding to complete the project by installing a low carbon heating system, although this option would need to be explored further by BEIS and potentially implemented into future iterations of the HUG Scheme.

#### Area-Based Eligibility and Identification of Eligible Households

#### HUG Policy Proposal Summary

In previous government fuel poverty schemes, obtaining information on eligible homes relied on benefits proxies easily verified by the Department of Work and Pensions (DWP). [Using benefits proxies](#) minimises fraud but does not sufficiently target the fuel poor, excluding the low-income households that do not claim means tested benefits.

The Government is exploring the introduction of new metrics such as Indices of Multiple Deprivation (IMD) alongside the English Housing Survey data. The Indices of Multiple Deprivation (IMD) metric measures the relative deprivation of different neighbourhoods across the UK. The IMD metric would result in a published list of eligible postcodes for area-based targeting and delivery of the HUG Scheme. Initial analysis by BEIS has shown the fuel poverty hit rate in the UK income deciles 1-3 is ~40% (whereas means tested benefits is only ~28%). Using the IMD metric would expand the eligible pool of homes, supporting area-based HUG funded projects to induce economies of scale, and level-up in areas of deprivation in the UK.

The IMD metric has been argued as an imprecise proxy for qualifying areas of fuel poor homes in England. [The BRE analysed](#) 2009 English Housing Survey data and found that 22.4% of homes in the bottom 10% of the IMD composite indicator were in fuel poverty but the national average was 18.4%. The BRE also analysed English Housing Survey data from 2005-2007 that used the IMD income indicator to determine areas of fuel poverty for the Community Energy Savings Programme (CESP). The analysis determined that just over 20% CESP targeted homes were in fuel poverty, against a national average of 15%. These findings have indicated that the IMD metric can be inaccurate to identify fuel poor homes in England.

Despite this, many local authorities are utilising the IMD as a method for qualifying fuel poverty. For example, [Bristol City Council](#) specify that IMD is one of the criteria they use to identify eligible homes for funding under ECO Flex.

The IMD metric is not a perfect measure for fuel poverty, but the correlation means it could be used to support identification. This deficiency means that utilisation should be considered alongside other metrics or alternatively, the metric could be reviewed to improve accuracy.

The Department for Communities and Local Government (CLG) developed [a report on updating the English Indices of Deprivation](#) for a subsequent consultation on the topic in November 2014. This included a suggestion to enhance IMD by adding fuel poverty as a measure of access to services. However, a CLG Review Team concluded they would not be including fuel poverty into the IMD as “the methodology used to produce the sub-regional estimates of fuel poverty does not produce robust estimates at very low-level geographies.” The Review Team noted any improvement in the methods could mean the indicator could be considered in the future. Consideration to incorporate fuel poverty as a measure into the IMD system is welcomed. This suggests that the metric should be used in combination with other measures to allow for more granular identification of properties in fuel poverty.

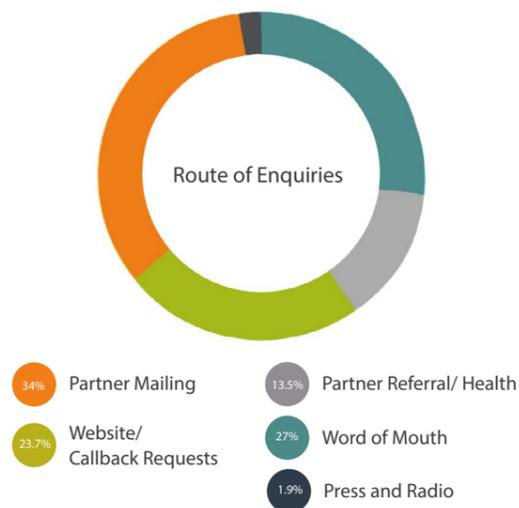
Identifying eligible properties via data collation and analysis is one the most challenging and overlooked components of delivering energy efficiency and low carbon measures for homes. If any property could be more easily flagged for potential improvement, via the use of an industry facing store of information, detailing all works undertaken in a property then HUG funding could be efficiently allocated. This lends itself to notions of a Building Passport, that could include a consumer facing element where consumers and perhaps LAs could review details of previous installations, any guarantees and information on recommended measures. This could operate as part of a retrofit plan for the property.

A best practice guide could be developed by industry for LAs and their partners to use, in identifying and qualifying fuel poor homes. This could be produced at the national level drawing upon findings from other programmes across the UK such as Wales’s Nest programme and other schemes to compare the effectiveness of different metrics and methods of qualifying.

For example, one council used their existing data on fuel poor homes and paired it with benefits data and income data. It was anonymised and shared with partners following GDPR compliance checks to indicate HUG eligible homes in the area. Health data can also be used to identify potentially eligible homes, as well as grid constraints, and education attainment datasets which were used in the Welsh Nest Scheme. To conduct this in-depth analysis requires resource, skills and capabilities that many LAs do not have. The Green Skills Fund may be used to help train employees within LAs to enable them to carry out in-depth data analysis on their housing stock to qualify fuel poor homes. This is discussed further in the section on ‘Local Authority Resource.’

### The Nest Scheme

The [Nest Scheme in Wales](#) is a demand-led scheme providing advice and free home energy efficiency improvements such as a new boiler, central heating or insulation if a household is in receipt of a means tested benefit. The Nest Team has worked with a range of partner organisations to identify eligible homes, including target marketing. The [infographic](#) shows the routes of enquiries where Partner Organisation Mailing was the most common enquiry route between 2019-2020. This proved a real success in identifying and qualifying eligible homes.



Easily accessible information and feedback from LAs following their experience on LAD, ECO and other government funded schemes would be helpful for LAs, installers and consumers to draw upon lessons learned and best practise. This could be done via workshops or roundtables via industry associations.

There is a need to develop easily accessible information on energy efficiency and low carbon heating. Currently, information can be difficult to access, navigate and information linked to specific companies may be biased. LAs could also direct consumers to the relevant information on a given website or portal for consumers to access support and advice. A tool could be implemented where consumers can enter their postcode in order to find retrofit installers, coordinators, or management companies as is the case in the Home Energy Scotland (HES) model. A more simplified version of this could be developed for the Simple Energy Advice website.

### Smart Measures and Innovation

#### HUG Policy Proposal Summary

The current eligible measure list does not include innovative measures including battery and thermal storage and particular smart controls. Battery and thermal storage will be recognised in the next iteration of SAP 10.2, to be introduced in mid-2022. Battery and thermal storage will help to lower energy bills and reduce carbon emissions and allow for the provision of demand side services to network operators. These technologies are being considered in future iterations of the HUG Scheme.

Smart controls are to be considered for future iterations of HUG, including those which act as a replacement for a programmable room thermostat. Smart controls are already delivered under Energy Company Obligation 3 (ECO3) via the Alternative Methodology Route so the inclusion in HUG would keep these schemes aligned. Smart controls could be eligible as an ancillary measure.

Innovation needs to be included within the HUG scheme to aid the verification of emerging technologies within large scale local area case studies and support progress however, controls must be in place to ensure consumer protection.

Smart and innovative measures such as battery and thermal storage are being considered for future iterations of HUG and will be a part of the next SAP 10.2, though currently they are not part of the existing policy for HUG Phase 1. Local grid constraints must be considered when looking to install low carbon heating, with a requirement for demand-side response to stabilise the market. Battery storage will need to be considered to balance the grid and address the demand for flexibility. More work is required in this area where comfort and grid balancing is heavily dependent on energy supplier business models and the aggregated saving of balancing the load with new low carbon heating systems such as heat pumps.

## Home Energy Scotland (HES)

[HES](#) is a network of local advice centres across Scotland. Funded by Scottish Government and managed by Energy Saving Trust, consumers can receive free advice and if eligible can apply for financial support via Warmer Homes Scotland or the HES loan. Consumers can use the Funding Finder Tool and enter their postcode to see if they are eligible for funding. Consumers enter information into the HES website and if they are eligible for Warmer Homes Scotland support, they will be passed onto Warm Works Scotland who manage the installation process, committing to the process happening within 65 days.



Many properties moving to low carbon heating such as heat pumps will be susceptible to peaks in electricity prices - an off-peak tariff would be more affordable. Residents might be reluctant to install heat pumps without solar panels to protect them from high electricity costs from the grid. Battery storage would enable households to use off-peak electricity to power the battery then use it during peak times. In addition, included in the [Heat and Buildings Strategy](#) is the ambition to develop more efficient heat pump models, with the ability to be responsive to local and national grid system needs, take advantage of Time-Of-Use Tariffs and to consider consumer preferences and comfort. These heat pumps can be integrated into a household's smart enabled energy system. It is important not to leave fuel poor households behind in the journey to net zero, utilising new and innovative technologies and measures.

Many smart and innovative measures have not been fully tested outside of a trial; they have not been tested in a live environment so more research may need to be undertaken. Fuel poverty schemes must strike a balance between low-income homeowners as beneficiaries of new innovative technologies and not discouraging the uptake of more cost-effective, mature technologies. Some smart measures might not be of best value for money. It must be of utmost importance to protect vulnerable consumers; it has been argued that innovative measures are not ready to be included in fuel poor schemes. There is scepticism regarding innovative measures in general for fuel poor schemes, however if scalable trials of measures can be a part of such schemes whilst protecting the consumer, then they could be considered. Those battery/thermal storage and smart controls have been trialled in the ECO3 Scheme via the Alternative Methodology Route and are therefore more appropriate for fuel poverty schemes including HUG versus other measures that have not been widely tested.

Smart measures for permanent monitoring of the building's performance should be prioritised for HUG, to obtain more knowledge on what the performance of energy efficiency measures installed is. The data generated in individual homes signifies which measures are most appropriate and can therefore calculate the best outcome.

## Implementing Innovation

Impactful products such as [AirEx](#) and [Radbot](#) stimulate change to the market and generate innovation. Product and service innovators require support from BEIS to commercialise and subsequently create market efficiencies in the energy efficiency and low carbon heating market. Case study examples (such as the products linked above) that show value for money and a clear case for investment can be presented to BEIS and in turn to central government for further long-term funding commitment.

In addition to the HUG Scheme, ECO should also bring through smart measures via the Innovation Route. The [Active Building Centre](#) looks at different combinations of energy efficiency and low carbon heating technologies for individual homes, where each retrofit plan is different to the next. They identify the most innovative materials, design and equipment for homes, workplaces and communities. Engaging with businesses and investment in product innovations will stimulate market efficiency and help to strengthen the skills within the workforce using innovative technologies. BEIS engagement with businesses looking to offer their product innovations to the HUG/ECO market should be prioritised, for these products to help realise government fuel poverty and net zero targets.

## Delivery Challenges

### Local Authority Resource

Bidding for HUG funding is likely to be resource intensive and whilst some LAs may have the capacity and capability inhouse to deliver this, others may not. It is clear that support will be needed to ensure that all LAs are able to access the funding available. For example, the Welsh Government has area-based programmes such as the Nest Programme, where technical support for developing bid responses is procured as a privately contracted service. LAs can access the bid support which is funded by the government when required and stakeholders during the workshop recommended a similar support service be offered under HUG. BEIS has recognised this challenge and set up a Technical Assistance Fund (TAF) for LAs when preparing bids for funding for the Social Housing Decarbonisation Fund (SHDF), though a separate privatised service could be considered for the HUG too. The TAF could also be expanded to include HUG, LAD and ECO. Unlocking area-based savings wherever practicable will drive down improvement costs, and sufficiently resourced LAs is key to this.

In addition, there are many other cost barriers to overcome. Funding is required for area wide retrofit and energy planning of a particular area that an LA is responsible for, before home upgrades can begin. LAs will need to build teams to plan for and deliver government funded schemes including HUG. There is a need to ensure that a boom-and-bust market is not created but instead long-term sustainable funding support is offered, with enough time for LAs to prepare to apply for funding.

LAs can participate in one of the five Local Energy Hubs: North East, North West, Midlands, South East and South West, that are financed by BEIS and act as the regional points of expertise and co-ordination on energy information. Many LAs have provided feedback that the hubs have been helpful with the tendering process for LAD Phase 2 and HUG Phase 1. Some LAs highlighted that they regularly have two meetings a month with the hubs and that the staff are knowledgeable and happy to take queries away and feedback the answers. There is, however, variability in the Local Energy Hubs with other LAs struggling to engage with them. BEIS must therefore enable better communication between those Hubs and LAs; it could be a case of limited resource in which BEIS may need to fund to increase resource in the hubs.

In addition, there are Regional Energy Hubs comprised of Local Enterprise Partnerships which consist of groups of local authorities and businesses. Some of these Hubs have been used to procure LAD Phase 2 funding to implement a local framework for LAs for future funding schemes.

The relationship between leaseholders who have share of freehold and freeholds will need to be examined and in turn, action will need to be taken to address inefficiencies. Many LAs do not have capacity to undergo research into the complexity of the leasehold-freehold dichotomy of tenure types to deliver successful HUG projects for all types of fuel poor homes.

### Delivery Timescales and Funding Deadlines

The short phases of LAD driven by the desire to stimulate economic recovery created issues with the delivery for LAs. The time it takes to begin a project was underestimated. In some cases, for the LAD Scheme, it took four times as long as originally anticipated. Some installers do not work in December and some consumers were not comfortable having measures installed during the cold season, so projects did not restart until mid-January extending the time taken. Moreover, some measures including external wall insulation can only be installed in mild, consistent weather which makes installation over winter challenging. This must be factored into the delivery windows and requirements on LAs regarding completion dates of projects.

For LAD Phases 1 and 2, LAs were required to set up a delivery team and an appropriate delivery model within approximately six weeks to begin delivery within weeks of the funding announcements. It has been suggested that this timescale significantly impeded delivery and caused resource constraints within local authorities. Stakeholders stated that the timescales were unrealistic in many cases with the funding windows closing shortly after LAs had set up an appropriate delivery model and started installation. This meant that the LA would need to re-submit a funding request.

Previous schemes, including the Green Deal and GHG, provided funding over a short period with limited time for engagement. It should be noted that 'stop-start' funding, particularly for more costly measures, has decimated the number of installers in the market. Long-term certainty of funding is therefore required.

The best way to endorse the levelling-up agenda for a sustainable recovery is to remove the tight deadlines LAs have to work towards. Initial preparations are the most time-consuming; engaging consumers and contractors as well as collating data must be completed carefully.

Housing associations also stress the challenge of tight deadlines, where it takes time for social housing providers to assess their stock in relation to new criteria set out in government schemes. Up to 10% of social housing may be included in applications for HUG funding as part of the tenure 'in-fill' for area-based home upgrades. As such consideration is needed to ensure that delivery timescales are appropriate across both organisation types.

## Supply Chain

### Supply Chain Confidence

The problems and early cancellation of the GHG Voucher Scheme significantly impacted many Small to Medium Enterprises (SMEs) and organisations in the supply chain, and many have informed LAs that they have no appetite for future government schemes. The roll out of successive short-term schemes into an immature market has driven up prices for installing energy efficiency measures. For example, Shropshire has a large percentage of off-gas properties but no economies of scale to keep prices down.

To encourage engagement in the HUG and drive installer interest, the Government will need to re-engage installers and highlight the opportunity. This could be achieved by utilising those organisations with a large installer network and good working relationships to provide reassurance. Steps to reverse the scepticism of government funded schemes must be taken in order for SMEs to train and re-skill, with the confidence that funding is definite. BEIS is supporting a huge expansion of the number of Retrofit Coordinators via bodies such as Elmhurst Energy who work in collaboration with The Retrofit Academy. The installer and maintenance supply chain capacity is a significant challenge to address.

## Retrofit Academy CIC

The [Retrofit Academy CIC](#) was established in 2020 to deliver industry-leading retrofit training. In developing and delivering qualifications to equip individuals with the knowledge and skills to deliver retrofit, the Academy has been training over 800 Retrofit Coordinators to address the skills gap for government funded energy efficiency and low carbon heat schemes such as HUG. They have developed two new qualifications to date: the Level 5 Diploma in Retrofit Coordination and Risk Management, and the Level 2 Award in Understanding Domestic Retrofit. Completion of the Level 5 course would mean the individual is able to work on projects that comply with PAS 2035, and the Level 2 course has been designed to provide the individual with an understanding of the PAS 2030 standard for installing energy efficiency measures in homes.

The supply chain is seeking commitment in the form of a pipeline of spend longer than one year; a forecast of five years would instil confidence, longer would be preferable. Since the HUG-SEA workshops the Heat and Buildings Strategy has been released including the Government's commitment of a further £950m to HUG and £800m to the SHDF over three years. In addition, the Government can assist the supply chain in developing a timeline of proposed or requested funding i.e., when will LAD/HUG/SHDF phases run and how much will be offered each time. If installers believe they will have certainty of long-term work, they will invest in training and certification. The Government's October 2021 Spending Review sheds some light on funding and when it will be accessible, though a clear timeline specific for government energy efficiency and low carbon heating funds is required.

Long term guarantee will enable LAs to successfully deliver HUG through planning, proposals and benchmarking ahead of government grants. The supply chain is concerned they will face more barriers such as added cost and administration, that prevent installers completing works under PAS 2035. Advice, guidance and training must be developed in collaboration with industry to ensure engagement and agreement on what is defined by best practise. It is important that a balance is struck between ensuring quality and a positive outcome, whilst not stopping work from being undertaken. BEIS will need to develop guidance to be followed, that will need a route to review and challenge.

### Supply Chain Readiness

For insulation measures, it has been argued that industry has recently seen a fourfold increase in demand with a simultaneous drop in capacity following Brexit, COVID-19 and GHG Vouchers scepticism. Government should publish details of the volume of works intended to be delivered under LAD, HUG, SHDF broken down by region and type of works, versus current supply chain capacity. This analysis would enable the supply chain to understand the scale of the problem, and work with government to upskill and increase numbers of appropriately trained installers. Upscaling, upskilling and increasing capacity of installers is how the government will hit fuel poverty targets and decarbonise homes.

Rural off-gas grid older properties are a challenge to retrofit, especially listed buildings or those in conservation areas. Similarly, specialist expertise and planning are required to work on blocks of flats. There are currently not enough skilled installers with the specialisms to retrofit these homes. It is unclear if PAS 2035 or TrustMark is set up to distinguish whether or not installers have specialist knowledge of working on such homes. BEIS will need to assess whether there is a need for such specialisms to be accounted for within the PAS.



## Consumer Engagement

### Consumer Engagement and Advice

The impact of PAS 2035 on the consumer needs to be communicated, so that they are aware of the timeline and implications that some works may not be approved if the home is of a particular type / if the measure is not practical to install. For example, if there is a narrow passageway between properties, the thickness of insulation is limited because access will be required. Thinner insulation may not provide the thermal efficiency required and leaving untreated could lead to potential unintended consequences such as reduced surface temperatures leading to surface condensation and mould growth.

Industry professionals have a deep understanding of energy efficiency and low carbon heat measures, as well as the benefits of addressing both of these holistically, but consumers seem to lack knowledge. This is evidenced by consumers often requesting just one measure based on misleading information from less reputable sources – e.g., consumers request for their windows to be replaced although predominant heat loss from the property may not be a result of the windows, but the walls, loft etc. Some LAs have experienced considerable drop-out rates for homes eligible for government funded upgrades, due to lack of understanding in energy efficiency and low carbon technology. They have felt the installation is too disruptive/expensive/complicated. Furthermore, COVID-19 has impacted levels of uptake for measures to be installed via the LAD Scheme as many vulnerable consumers have been shielding. This will be a continued challenge in the HUG Scheme also. There is a need to ensure that consumers are engaged throughout the project and their individual circumstances addressed.

Adopting a Home Energy Scotland-style model where messaging and information is delivered at both the Government and local level should be prioritised. This helps to inform consumers before the installers arrive at the door. Nationwide public campaigns are effective to educate consumers on differences between active and passive measures for their homes.

It has been suggested that community energy schemes are 4-5 times better at engaging consumers and delivering energy than the traditional corporate route. Utilising community energy schemes to better engage local communities on energy efficiency and low carbon heating is an approach the Government will need to consider as part of the package of options for the consumer to reach net zero.

Around the country, energy advice is offered by different providers, for example Groundwork as shown in the case study box below. Advice provision may be funded by a range of actors – councils, energy suppliers (as part of ECO Scheme marketing), network operators or housing associations. However, the Government will need to work to improve the existing Simple Energy Advice service, to expand the co-ordinated national advice provision in England to a standard similar to the HES programme. As such, there is a lack of joined-up, independent guidance for consumers across England and a need for the Government to provide support to ensure robust national coverage of energy advice services.

### Groundwork UK

[Groundwork UK](#) is a federation of charities focusing on practical community action on poverty and the environment across the UK. [Groundwork London](#) work with utilities companies, housing associations and local authorities to assist consumers in reducing their energy demand and tackling fuel poverty. Groundworks 'Green Doctors' help consumers save money and resources. They also design community projects to promote the use of recycling and reusing items such as white goods.

### Local Energy Advice Agencies

Energy advice agencies are key to providing long-term support through the consumer journey, in particular for those consumers who are vulnerable or elderly who may not easily access online advice but would rather have phone calls with Local Energy Advice Providers. This will help guide them through the process of installing energy efficiency or low carbon heating upgrades.

The importance of a single point of contact cannot be stressed enough; consumers are far more engaged if they feel they are being listened to and their requirements are being taken into account. Consumer advice is required before stock analysis is undertaken by the LA, as consumers will be more willing to participate in the HUG Scheme if there is already a trusted source providing energy advice. A single point of contact should be made available right the way through the entire consumer journey to post-installation. Problems can arise once the installer, who may not pay an interest in after sales/customer support, has vacated the property. RetrofitWorks is an example of a company that provides a single point of contact. If Local Energy Advice Agencies are available, LAs are able to write to residents that require costly retrofits and suggest they contact such agencies, that have a trusted installer list and are able to support customers through the application process.

### RetrofitWorks

[RetrofitWorks](#) is a community-based organisation that designs and hosts energy efficiency and retrofit schemes. Set up in 2013 RetrofitWorks designs, implements and manages energy efficiency and retrofit schemes in partnership with local advocates including community organisations, charities, LAs, housing associations, energy companies, landlords and estate agents. It helps to provide an end-to-end service for the consumer.

### Living with an Energy Efficient, Low Carbon Heating System

Advice and guidance provision on your home and its operation is imperative; the importance of adequate ventilation and heating is rarely understood. A building passport approach would address this, providing more information for the consumer with the potential to include information on heating the home, how it operates, maintenance requirements and a medium-term improvement plan.

There are multiple actors involved in informing consumers on living with a low carbon heating system. It is rare that traditional fossil fuel boiler installers give advice on energy efficiency/low carbon heating measures. However, installers of a new heat pump do provide information on future energy bills to help inform the consumer and minimise customer complaints at a later date. LAs suggest that continuous advice and guidance is needed for a longer period of time at different touch points in the consumer journey.

Current advice is delivered in a decentralised manner by way of the installer. Heat pumps work differently to traditional fossil fuel heating. Factors such as adapting to different heating cycles, impact on bills, behavioural changes and overall viability of a system to suit specific property characteristics will need to be considered. Schemes including ECO operate on the commercial principles of 'lowest £ per lifetime bill/carbon savings', where obligated suppliers contract out the delivery to third party SME installers. The design of such schemes overlooks the need to educate the consumer on low carbon heating. This important role falls between two stakeholders, third party installers and obligated suppliers. Currently, most early adopter consumers do their own research which is inconsistent, complex and time consuming. The independence of advice can be an issue and failure to achieve consumer expectations can breakdown trust.

To achieve mass adoption, it is of utmost importance that a robust advice and guidance framework is established. This should cover the full customer journey from pre-installation to post-installation when residents adapt to the new way of heating. Such change can only be possible when BEIS works with industry stakeholders to combine adequate training and the enforcement of relevant standards, with a centralised platform for independent guidance and advice to suit every customer's needs. Simple Energy Advice could host this specific consumer advice and serve as a hub for the required information developed in association with trade bodies like the Heat Pump Association to maximise reach.

To achieve mass market penetration of low carbon heating technologies, advice provision needs to be improved via engaging the installer who is best placed to advise the consumer. It cannot just be done through utility companies or a few large companies, as the vast majority of heating systems are delivered by SME installers. Successful advice provision requires improved training, implementation of appropriate standards and regulation enforcement, i.e., through a skills card combining consumer protection.

Consumers must be given the right advice on low carbon heat and in particular heat pumps, including the impact on bills and how to live with a low carbon heating system. Heat pumps under the MCS require such advice though it is complex and technical, and it is said that installers tend to provide advice for the MCS accreditation without quality checking with the consumer that they have understood. Consumer advice when installing any low carbon heating system must be clear, thorough and easy to understand. Regular check-ups or an online service should be established by HUG for consumers to use well after the heating system has been installed. This support could be provided as part of a service contract after the standard warranty of a home upgrade measure has expired. The exact duration of this service must be evaluated and determined.

## Engaging Private Landlords

Engaging private landlords is a particular challenge that LAs face when looking to deliver government funded retrofit works. A proportion of private landlords may have inherited a property to rent out, and may not have the contribution required, such as the minimum one-third contribution (for example a landlord contributes £2,500 and receives a £5,000 grant, £7,500 in total for the home upgrade) for the LAD Scheme in order to receive government funding for retrofit. For the HUG Scheme, landlords will be able to pay up to a maximum of £8,333 in order to receive a grant of £16,666, which is £25,000 in total for the home upgrade.

Longer timescales would allow for more landlords to source a particular amount of funding. Producing the initial contribution required for funding may not be feasible for many landlords and green financing could assist e.g., green loans. Liaising with managing agents to ensure commitment from landlords to contribute e.g., £2,500 is one possible route to engagement. However, many landlords do not work with managing agents.

Off-gas properties in cities are usually blocks of flats and the challenge of mixed tenures and absentee landlords or residents becomes a huge issue. Retrofitting blocks of flats is challenging as LAs cannot just work on one flat or half a block. Varying tenure types in a block of flats can be a challenge when a group of flats are all eligible for HUG funding. Varying tenure types across a terrace of houses can be almost as much of an issue in unlocking multiple property improvement savings, where work such as detailing of the properties can be a challenge as there will be technical risk in some properties but not others.

Joined up thinking across LAs is needed to understand how to address these issues, and targeted engagement from data analysis is required. Communications vary depending on the recipient, some prefer phone calls, others email or text. Adapting the communication style based on the individual landlord is required. BEIS aims to engage with the National Residential Landlords Association to better assist landlords in removing barriers to retrofit works via the HUG Scheme.

The Government has committed to a minimum energy performance standard (MEES) of as many private rented homes in England and Wales to be upgraded to EPC Band C by 2030. There would need to be a tightening of this MEES in order for landlords to undergo the more impactful home upgrades. If the MEES is not tightened nor adequately enforced by LAs, landlords may be more inclined to improve the property only to the necessary extent to rent it out. For example, if a property would undergo solid wall insulation that costs ~£10,000-£20,000 and increase the EPC from an F to a C, the landlord may be more inclined to replace an old boiler that costs ~£3,000-£4,000 and increase the EPC from an F to an E. This would mean minimal improvements and no significant impact on reducing carbon emissions and running costs. Furthermore, many landlords are aware that LAs do not have sufficient capacity to enforce the MEES, and this must be addressed.

In addition, landlords do not always register themselves so LAs are unaware of which private rented properties are eligible for a home upgrade via HUG. [The Committee on Fuel Poverty](#) have recommended a property and compliance database – more broadly a landlord registration scheme, to identify which properties are in the private rented sector in order to enforce the MEES. It is recommended that registration is mandatory and enforced nationally. Tough action should then be taken by government should landlords not meet the MEES or rent properties that are hazardous.

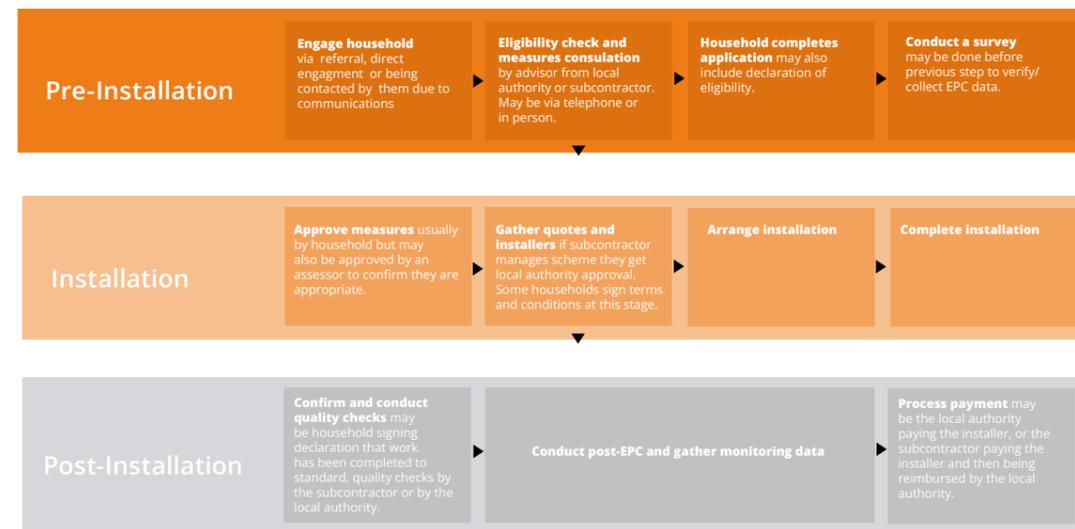


### 3 HUG Delivery Models

#### Local Authority-Led Model

##### Proposed Consumer Journey

There are three stages to the consumer journey within LAD Phase 1: pre-installation, installation and post-installation as shown in the infographic below. This journey has been developed by BEIS with the proposal to implement for the HUG Scheme.



At the pre-installation stage consumers are engaged, where LAs can use referrals from charities or health services to send letters or emails about the HUG Scheme alongside e.g., benefits information. LAs will verify the income eligibility of the household, before conducting an EPC survey to determine the eligibility of the home prior to the installation.

At the installation stage, measures are approved by the household and by the Retrofit Assessor, Co-ordinator, and Designer to ensure they are appropriate. PAS 2035 is mandatory for HUG Scheme works and so a Retrofit Coordinator will be consulted, and will project manage the installation process. Subcontractors can gather quotes and liaise with installers and subject to approval by the LA, the installation can be arranged and completed. Subcontractors will also need to adhere to PAS 2035.

At the post-installation stage, work will need to be confirmed and high-quality checks conducted. Post-EPC surveys are taken to check the level of improvement and monitoring before payment is processed for the installer and subcontractors.

#### Proposed Installer Journey

There have been four models LAs have generally adopted for LAD Phase 1:

- 1 Delivery Partner Model
- 2 Principle Contractor Model
- 3 Installer Model
- 4 In-House Model

In the Delivery Partner Model the LA chooses a particular supplier to be their partner to deliver the project. The supplier is trusted to implement the consumer journey above including the quality assurance and payment of subcontracted installers.

The Principal Contractor Model means the LA is heavily involved from the beginning of the consumer journey and is responsible for generating signups, referrals, and reviewing and assessing quotes from the principal contractor. The chosen principal contractor manages the construction phase of the project before the LA resumes control at the end of the consumer journey.

In the Installer Model different contractors operate at different points in the consumer journey process, where each contractor is appointed by the LA to install the measures only.

#### Feedback on Journeys

The process within the consumer journey map generally used by LAs during the LAD Scheme may be too complex. The consumer journey varies depending upon the LA, and the delivery of HUG is largely devolved where LAs can map their own consumer journey. There is a risk that SMEs may not engage with the Scheme if subcontractors are required to adhere to PAS 2035. There will need to be financial support and advice for SMEs to be adequately trained to PAS 2035. SMEs will need to engage and recommend improvements as it has been argued that SME installers have been known to be trusted by the consumer versus a larger corporation or government.

LAs could implement a process whereby the delivery partner works with the supply chain to receive a quote and then check it to ensure it is appropriate. In this approach, it is suggested that the delivery partner would not need to seek approval from the LA for every job, instead they will have delegated authority to sign off quotes as required. Adopting this approach would reduce administrative burden placed on LAs and may deliver efficiencies by speeding up the approval process.

The end-to-end consumer journey is already extensive particularly when considering the addition of PAS 2035 and the role of a Retrofit Coordinator. It is therefore important that consumer checks are streamlined as much as possible. Checks, audits and approvals need to be undertaken at an appropriate level which might not be for every job i.e. assume positive intent, to be managed by contractor or delivery partner on behalf of LAs with a percentage of jobs being checked.

In addition, quality assurance throughout the entire project is imperative. On LAD projects, LAs found issues with contractors not keeping to appointment dates, not turning up on time nor managing expectations. To avoid this, it is important that LAs maintain a good line of communication with the consumer, contractor, installer, and delivery partners throughout the entire process.

At the installation stage, the current training and guidance available for Retrofit Co-ordinators, Assessors and Designers will need reviewing by industry and academia. Practical guidance needs to have consensus and be evidenced. Best practise for the various approaches to retrofit will need to be identified, and there needs to be a route to challenge and review guidance, especially if the roles above are a requirement for more government funded schemes.

At the post-installation stage, a post sales service, repair and maintenance package should be mandatory to deliver savings over the life-time of the heating system.

## Future Models Summary

The below table summarises the feedback given by stakeholders on potential future HUG models including the Consumer Access Route Model and Installer-led Model.

Future Models	Considerations
<b>CONSUMER ACCESS ROUTE MODEL</b>	Local Energy Advice agencies can adopt a role to refer consumers to installers and maintain a list of trusted installers.
	Conducting a whole house assessment prior to defining the measures to be installed is more effective at improving thermal performance, reducing energy demand and managing expectations.
	The Retrofit Co-ordinator can play a consumer facing role as the main point of contact for the entire consumer journey including post-installation. Consumer advice must be independent, and the Retrofit Co-ordinator must be able to liaise with all stakeholders throughout the supply chain.
<b>INSTALLER-LED MODEL</b>	Work to simplify the process for installers is key; not using multiple systems to log projects but having one system and a main point of contact is crucial.
	Installers can fill the gap where LAs cannot reach certain areas, or do not have the funds for all eligible homes in the area.

## Consumer Access Route

### Proposed Model

BEIS has been considering whether to introduce a consumer access route for HUG in the future. Initial thinking is that the eligibility criteria for the consumer access route and the existing LA-led HUG Scheme would be similar.

This model would allow consumers to apply for HUG funding across all regions and areas of England. BEIS support the view that this model would be a complementary scheme to the LA-led scheme, not intended to oppose or supersede. It opens up more routes for greater procurement and for more homes to be warm, energy efficient and healthy.

Stakeholders have argued that the Consumer Access Route Model is preferable in various scenarios, e.g., for landlords wishing to improve their homes with multiple measures where the LA may only be offering one measure.

### Feedback

In terms of scheme structure, a consumer access route model could include hard ancillary measures as part of the capital costs, and soft ancillary measures could be paid for from a central pot accessible to all delivery partners. Alternatively, soft ancillary measures could be capped at 5% per home which would allow for greater control of total funds.

A centralised system solution for a consumer access route could be high risk and prone to cost and time inflation during mobilisation and implementation. Any consumer access route must have the administration set up and working well. The Warm Works Scotland model is a successful example of this. The consumer journey will need to be as simple as possible to prevent consumers from falling out of the process and not following through with the installation of measures.

A programme of work for installers should encourage them to invest in upskilling and training. Key to ensuring this sustainable demand is by engaging with consumers who will need to be adequately educated on the benefits of measures to avoid assessments being undertaken without follow through of installation. Anecdotal evidence suggests that attrition rates can be high without sufficient engagement.

Furthermore, installer availability must be investigated early to prevent consumer disappointment in their measures not being installed in the expected time. This must be done in the early stages whilst installer capacity grows.

It should be noted that a consumer access route could be prejudicial against vulnerable residents including those who are elderly and do not have access to the internet, non-native speakers, residents with learning or physical disabilities and those uncomfortable with engaging with landlords for fear of eviction or raising rental costs. It will be important to ensure that these consumers are not isolated from the scheme and are encouraged to apply for support. The provision of independent advice centres providing in person and over the phone appointments could be considered. Learnings could be taken from NEST in Wales (which has strong community outreach elements) and HES (which has an Energy Carers programme providing detailed in-home support for vulnerable customers to access Warmer Homes Scotland support).

There is a greater risk of mis-selling in a consumer access route with companies selling via telephone and potentially installing poor quality measures. The consumer access route will therefore need to have strong accreditation checks and advice services for consumers to distinguish the quality installers from the 'cowboys'. Ensuring high minimum installation quality standards will be important. The requirement for installers to meet PAS 2035 and be MCS registered as applicable should mitigate this risk.

The Consumer Access Route Model aims to simplify the consumer process and minimise the amount of input required by the consumer. Local Energy Advice agencies can adopt a role whereby they refer consumers to installers and maintain a list of trusted installers; if there is an issue, they can flag an installer to a particular accreditation body.

Those providing advice across LAs, Local Energy Advice agencies, charities and energy suppliers will all need to be very well informed of the processes and consumer journey to give the most appropriate and thorough advice possible. The Warm Works Scotland Scheme is a framework for which the consumer access route approach could follow.

## Mapping the Consumer Access Route Model

The below boxes dictate who might be responsible for which part of the consumer journey for a Consumer Access Route HUG Model. During the final SEA-BEIS workshops, industry stakeholders participated in an activity to assign responsibilities to the appropriate stages along the consumer journey for a potential Consumer Access Route within the HUG Scheme. The responsible agents for the activity included:

BEIS	Retrofit Assessor	Commercial Delivery Partner
Consumer	Retrofit Co-ordinator	Retrofit Designer
Scheme Administrator	Agent	Installer

The stages they would need to be assigned to are:

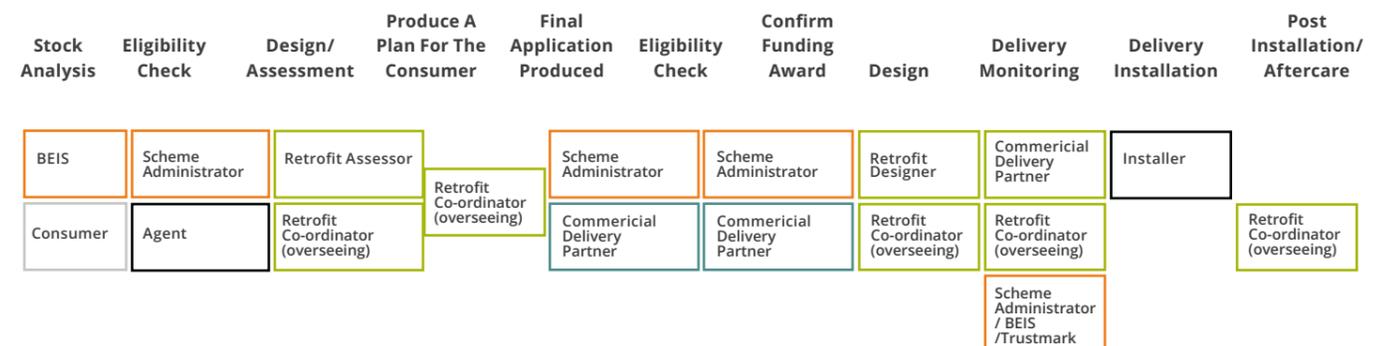
Stock Analysis	Produce a Plan for the Consumer	Confirm Funding Award
Eligibility Check	Final Application Produced	Design
Design/Assessment	Eligibility Check	Delivery Monitoring
Delivery Installation	Post Installation/Aftercare	

### Results From Mapping Activity

The model below depicts the consumer journey for a Consumer Access Route HUG Model. The following section describes the model from Stock Analysis to Post Installation/Aftercare.

An assessment of the housing stock at a national level and the setting of household eligibility criteria should be undertaken by BEIS. The consumer will be required to analyse whether they meet the scheme criteria and self-identify. Organising the eligibility check could be the responsibility of the Scheme Administrator (for example the [Energy Savings Trust](#) administer the HES Scheme on behalf of the Scottish Government) appointing an agent to conduct these checks. At the design/assessment stage, the Retrofit Assessor is responsible for the home assessment and the design of the retrofit plan, and the Retrofit Co-ordinator oversees the work. The Retrofit Co-ordinator oversees the final application of the retrofit plan.

The Commercial Delivery Partner would conduct the secondary eligibility check following the application, which is overseen by the Scheme Administrator, funding is awarded, and the design of the HUG project begins. The Retrofit Designer conducts the design phase appointing installers at this point, overseen by the Retrofit Co-ordinator. Monitoring the delivery requires shared responsibility between the Commercial Delivery Partner, Retrofit Co-ordinator, Scheme Administrator, BEIS and TrustMark. Delivery of the installation can then take place with the Retrofit Co-ordinator overseeing the project as well as the post-installation and aftercare services.



Separating the 'assessment improvement' stage and 'medium-term plan' stage from the 'designer installer' stage is important. This ensures LAs are not bidding to fund projects on predetermined measures. The home will need to be assessed and the consumer needs consulting before any measures can be decided upon. A measures-led approach is not advised; the focus must be on PAS 2035 and not appointing measures for the project before the property is assessed. The Nest Scheme in Wales found that conducting a whole house assessment prior to defining the measures to be installed was more effective at improving thermal performance, reducing energy demand, and managing consumer expectations than defining the measures prior to the assessment.

If the Retrofit Co-ordinator and Commercial Delivery Partner have not considered installer availability at the design stage, it could cause significant delays for the consumer. The risk of a negative experience for the consumer is then loaded towards the back end of the consumer journey, on the installer. It is therefore important that the delivery partner identifies an appropriate installer as early as possible.

Installers should not be engaged until the measure mix has been identified and a retrofit plan has been developed. Appointing installers beforehand risks the process being weighed in favour of measures that a particular installer has the capability to deliver versus what the home needs. This is of particular importance for low carbon heating systems where installers are in high demand, but it is also a challenge for them if the install is delayed or brought forward. Installer flexibility must be considered and communicated to the consumer.

The Retrofit Co-ordinator and Commercial Delivery Partner should be aware of installer availability before the design phase to set expectations of timescales for the consumer. Whilst capacity is being built in industry, time is needed for this to happen.

## The Central Role of Retrofit Co-ordinator

The Retrofit Co-ordinator can play a consumer facing role to explain what the plan is for the property in the pre-installation stage. The Retrofit Co-ordinator will need to work in accordance with the requirements of PAS 2035. The Retrofit Co-ordinator can be the continuous point of contact for the consumer. Consumer advice needs to be independent and funded to play a point of contact role beyond the Scheme, with a remit to require engagement from all partners if necessary.

PAS 2035 allows for one individual to have multiple roles, Retrofit Co-ordinator and Retrofit Assessor. However, if multiple responsibilities are held by a single individual servicing a particular geographical area, there is a risk that the project could be delayed due to a bottle-neck effect. There is therefore a need to ensure that there is a sufficient population of qualified persons to deliver these schemes. Government investment in skills and training via organisations and businesses such as Generation or the Retrofit Academy must be prioritised to avoid this.

The Scheme Administrator will need to ensure the Retrofit Co-ordinator role does not face a conflict of interest when hired by the Commercial Delivery Partner. In addition, at the post-installation stage, a customer satisfaction survey should be issued and mandated by PAS 2035. This should be completed by the Retrofit Co-ordinator in addition to remedial works (if required) and quality assurance. Though an annual check-up is not mandated by PAS, it should be implemented.

## Alternative Routes to Delivery

An alternative route to delivery could involve the Commercial Delivery Partner adopting a central role, producing a plan for the consumer, and acting as the link between the consumer and the Retrofit Co-ordinator.

Completely removing the onus on consumers and establishing a LA-led HUG Scheme for the 'able to pay' sector for residents with any EPC rating could generate better value for money. LAs are able to navigate the complexities of the scheme more efficiently. They also offer the market and installer network stability.

Furthermore, a locally led route to generate local employment could be set up and a delivery partner that works within a particular locality could be appointed to manage the consumer access route and procure local installers. This would generate employment, upskilling and local economic growth.

## Installer-Led Model

An installer-led approach would enable installers to apply for HUG funding directly, allowing them to bid for particular area-based projects i.e., whole streets or blocks of flats. Such a scheme would need to consider the scepticism of government funded schemes amongst installers following the GHG. Installers also felt it was a significant challenge to navigate multiple systems to log projects; many have lost money whilst some are still waiting for payments from the GHG.

The role for installers could be one of filling the gap where LAs are unable to reach certain areas or do not have enough funding to improve all fuel poor homes. It is important to reduce interference between routes of delivery to ensure efficiency within the HUG Scheme.

## Generation

[Generation](#) aims to transform education to employment systems to prepare, place and support people into their careers. Funded by BlackRock, McKinsey & Company, Microsoft and Verizon, it runs various employment programmes including a [Retrofit Advisor programme](#) for London and Yorkshire. This is a 10-week programme for individuals to be certified as a qualified Retrofit Advisor to match the growing demand across energy companies, housing associations and councils.

It is a training cohort of Retrofit Advisors to work with co-ordinators focused on robust and continuous advice for householders, and in particular vulnerable householders.

## Conclusion

The Home Upgrade Grant (HUG) Scheme provides government and industry with the opportunity for collaboration, to aid as many fuel poor homes as possible to achieve a minimum energy efficiency rating of Band C by 2030 with an interim target of as many fuel poor homes as possible to Band D by 2025. Coupled with the LAD and SHDF, local authorities, housing associations and delivery partners can realise robust supply chains and routes to delivery so that the consumer journey is seamless, quality and performance is assured, and the consumer is protected. Achieving this requires continued cooperation between government and stakeholders with opportunities for dialogue present in workshops, roundtables and task groups for ongoing review of government funded schemes. Fuel poor homes must not be left behind as the UK embarks upon the net zero trajectory; the funding commitments across the schemes should allow for fuel poor homes to receive smart and innovative measures where appropriate. Affordability and fairness will need to be at the heart of any government funded scheme for fuel poverty, focusing on reducing bills but also carbon emissions. Working towards net zero whilst tackling fuel poverty is a significant challenge, but the findings and advice provided by industry during these workshops should help inform the structure and aid successful delivery of HUG as well as other fuel poverty schemes.



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