

Summary report on the development of retrofit strategies for pilot landlords in the South West

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Table of Contents

1	Introduction and background	4
1.1	Landlord housing stock overview	4
2	Commonalities and differences across assessments	5
2.1	Data availability	5
2.2	Funding opportunities	6
2.2.1	Priorities when programming homes for funding	6
2.2.2	General trends	6
2.2.3	Opportunities	7
2.2.4	Barriers	7
2.3	Supply chain availability	7
2.4	Tenant perceptions	9
3	Key learning points	10

1 Introduction and background

The South West Energy Hub commissioned BRE to develop retrofit strategies for 5 social landlords as a pilot of the type of support that landlords may require to begin their retrofit journey towards decarbonisation. The short term milestone for landlords is that their homes should achieve at least EPC Band C by 2035, or by 2030 for fuel poor households, where practical, cost effective, and affordable.^a A range of financial incentives are in place or proposed to support this transition, but many landlords are uncertain about the most appropriate retrofit measures to deploy to meet the short term targets (while being mindful of longer term decarbonisation targets), and how best to prioritise homes to receive measures.

Each of the 5 participating landlords received a detailed retrofit strategy report setting out a reasoned approach to the prioritisation of their housing stock for retrofit measures over the coming years. This report summarises the feedback and learning points from the exercise, highlighting similarities found between landlords that are likely to be relevant to others in the region, and also the conditions leading to differences that were seen.

1.1 Landlord housing stock overview

The 5 participating landlords covered stock profiles ranging from large, with around 12,000 homes, to very small, with only a few hundred homes, and thus are expected to represent a good cross-section of social landlords in the South West. Each had different levels of experience in implementing energy efficiency retrofit measures, yet all had at least trialled to some extent examples of the technologies expected to be required to deliver wide-scale decarbonisation in homes, such as heat pumps and photovoltaic systems.

Table 1 gives an overview of the baseline situation of the landlords in the study. All had homes that were not currently served by mains gas, ranging from as little as 15% of the stock to 80% where the landlord held the majority of their stock in rural areas. All have homes currently below the EPC Band C performance target (17-60%), but with far lower numbers of homes at the lowest EPC Bands E to G (2-13%). These latter, poorest energy performing E to G homes are those that would be expected to be prioritised for retrofit to help reduce the risk of fuel poverty amongst households.

Table 1: Stock overview of participating landlords

Landlord	A (Curo)	B (Magna)	C (Selwood)	D (Fareham)	E (CRHA)
Type	RSL	RSL	RSL	Local Authority	RSL
Number of homes assessed	11850	7670	6500	2300	336
% not served by mains gas	20%	30%	15%	40%	80%
Homes EPC Bands D-G	7159 (60%)	2295 (30%)	2372 (36%)	1101 (48%)	58 (17%)
Homes EPC Bands E-G	1492 (13%)	325 (4%)	173 (3%)	287 (12%)	7 (2%)

^a HM Government, 'The Clean Growth Strategy – Leading the way to a low carbon future', October 2017, updated April 2018. Available at: www.gov.uk/government/publications/clean-growth-strategy

2 Commonalities and differences across assessments

2.1 Data availability

Before BRE embarked on preparing the retrofit strategies, each landlord had undergone a stock-level data assessment and options appraisal. This calculated the impact of a range of different potential energy reduction measures and the most cost effective route to achieving an EPC rating of C or better for each home. This data formed the basis of the prioritisation strategies, which subsequently focussed on potential funding options for the identified measures, and alignment with planned repair, maintenance and improvement (RMI) works where possible.

The quality and the extent of information available from the landlords influenced the confidence in the strategy recommendations, and in some cases the level of detail of analysis that could be undertaken, as follows:

- Stock level data analysis often relies on interpolation of data for properties where insufficient data is known, e.g. where no recent EPC has been carried out. Often this relies on trends identified from other homes in the vicinity or using assumptions based on property type or age. This results in some uncertainties about the practical suitability of measures for homes, which would need to be verified in due course by detailed home surveys. The more accurate the available data landlords hold ahead of such an assessment, the more confidence they can have in the recommendations and financial forecasts they are subsequently developed.
- Another factor experienced by some landlords was that some of their homes have 'listed' status or are in areas that restrict certain developments (e.g. conservation areas). It follows that some retrofit measures that appear beneficial from an energy/ carbon saving perspective would simply not be permitted. Where this property-level information can be provided as an input to the stock analysis, it can prevent unviable measures from being recommended in the first instance, again improving the confidence that the overall recommendations from a retrofit strategy should be more likely to be deliverable in practice.
- Landlords hold different levels of information regarding planned RMI activities, with some relying on more reactive maintenance approaches for some elements. Where such data is not available, it is not possible to determine the likely budget for RMI works that could offset part of the costs for retrofit measures in a given financial year. Having such information would help improve the planning of a business case for retrofits. Also it is not possible to prioritise and programme measures to capitalise on works due to take place anyway, leading to some risk that reactive RMI works may be carried out then retrofit works shortly after, thus missing cost-saving opportunities from alignment and potentially leading to unfulfilled lifespans of elements if they subsequently need to be replaced/ upgraded.

It follows that for some landlords more detailed prioritisation exercises were possible, scheduling retrofit measures to coincide with, or replace RMI measures, such as converting to an air source heat pump when the existing heating system was reaching its replacement interval. Other examples included the ability to identify that roof covering renewals would take place ahead of (or at the same time) as the installation of PV systems, and also where window replacements may need to be brought forward to allow more robust detailing of solid wall insulation.

From the stock analysis, switching heating to heat pump systems was a common recommendation. Two of the landlords did not have RMI schedules for heating systems, hence it was recommended that any reactive works to heating systems should be considered in the context of a retrofit strategy in order to ensure best value.

2.2 Funding opportunities

To support the Government's aims to improve the energy efficiency and carbon emissions from homes, a number of financial incentives have been committed. Many concentrate on reducing energy bills in the currently most inefficient homes or for households most at risk of fuel poverty. Typically, funding with short term availability is the most generous (compared to proposed future schemes) to prime the retrofit market. This also reflects a general expectation that measures may become more cost effective over time when supply chains become more established and delivery gains pace at a wider scale.

2.2.1 Priorities when programming homes for funding

The following considerations were applied when proposing retrofit strategies for the pilot landlords

- Some landlords required too many measures to practically be delivered in the short term timeframes required by some of the more generous funding mechanisms available, such as the Green Homes Grant Local Authority Delivery (GHG LAD) funding. It is also expected that there could potentially be limited capacity in the supply chain for such delivery in the short/ immediate term. Homes were therefore prioritised in the landlords' retrofit strategies based on the lowest EPC bands (i.e. those at greatest risk of households being in fuel poverty) and where works could align with upcoming RMI measures (where known).
- Where funding methods had several types of eligible measures (i.e. insulation measures, heating systems and/ or renewable energy generation systems) insulation measures were prioritised for the funding in order to provide fabric-first energy savings to homes.
- Where ASHPs were recommended properties not currently served by mains gas were prioritised in the short term, as off-gas heating systems would be expected to have higher running costs and carbon emissions compared to mains gas homes and thus would benefit more from the switch.
- When proposing the retrofit strategies, measures were:
 - Generally evenly split across financial years to create a consistently sized delivery programme
 - Fabric measures were prioritised to 2025 to ensure short term benefits in homes where insulation was currently insufficient,
 - heating system upgrades and renewable energy systems were allocated through to 2035, ultimately in time to meet the Government's EPC Band C target.

2.2.2 General trends

Most landlords would benefit from Green Homes Grant Local Authority Delivery (GHG LAD) funding to subsidise the more costly improvement measures on qualifying homes, i.e. solid wall insulation, ASHP upgrades or PV installations. For the landlord with the smallest stock in the study, the number of eligible homes/ measures was limited, which may make them not as attractive a partner for a GHG LAD delivery programme. However, by contrast, they are more likely to be able to take advantage of short term funding to March 2022 via the Renewable Heat Incentive (RHI) scheme (for ASHPs) where funding is applied for on a house-by-house basis. This may be considered impractical at scale and within the funding timeframe for landlords with larger portfolios but is likely more manageable for relatively small numbers of homes. Energy Company Obligation (ECO) funding was also available to most landlords for insulation measures in qualifying homes. Beyond the immediate GHG LAD funding, landlords could then take advantage of the proposed Clean Heat Grant (CHG) scheme (expected to be introduced in 2022) to subsidise the installation of further ASHPs.

2.2.3 Opportunities

Given that future proposed funding carries less certainty, it would be financially advantageous for landlords to take advantage of current, relatively generous, funding streams (as already committed by Government) where they find it viable to increase the numbers of measures delivered in earlier years.

2.2.4 Barriers

As highlighted earlier, as a result of data interpolation in the stock-level property assessment, or potential development restrictions not being taken into account, there may be some uncertainties inherent to the measures recommendations. When looking to fund and implement a programme, it may ultimately be found that some homes cannot receive the scheduled measures, or that homes identified as eligible for certain funding due to their forecast EPC band may turn out not to be. This may cause some retrofits to stall as alternative measures are considered or additional funding sourced.

At a time when all social landlords will be embarking on retrofit programmes to meet the 2035 Band C targets, some may face difficulties securing the necessary suppliers and installers when there is local (and national) competition for these services. This could lead to cost increases driven by reduced supply, which could place the viability of some schemes in jeopardy. It could also cause delays compared to initial programmes. Both of these factors create a risk that the planned measures may not be delivered and that allocated grant funding may remain unspent. This risk may reduce the scale of schemes that landlords may be prepared to take on in the short term, which would lead to a slower start for retrofit delivery on the whole and consequently higher concentrations of measures needing to be delivered in future years.

2.3 Supply chain availability

An analysis of the existing retrofit supply chain was undertaken to gain insight into the presence of installers of relevant retrofit systems and services across the South West, and thus understand to what extent local businesses could potentially support retrofit activities. The intention was that the analysis could also highlight potential local skills shortages, which could impact the ease with which retrofit services could be procured locally. However, note it cannot in itself imply supply chain capacity, as it was beyond the scope of this study to consider staff numbers, the rate at which businesses are able to carry out installations, or current workloads. A summary is provided in Table 2.

Sources for the supply chain analysis were the TrustMark database and the Microgeneration Certification Scheme (MCS) database, as suppliers are required to be registered with one or both of these schemes to be able to deliver works under several of the current Government grant programmes.

There are relatively higher numbers of installers of more traditional home improvement measures such as loft/ roof insulation and windows and doors. Heat pump and PV installers are also reasonably well represented. However, there are relatively lower numbers of insulation installers, hence going forward there may be increased competition for these trades.

For PAS 2035 related services, the analysis identified a significantly higher number of Retrofit Assessors than Retrofit Coordinators. Retrofit Assessors are qualified to carry out the detailed surveys required to carry out a 'whole house assessment' for homes in advance of being considered for retrofit measures, and Retrofit Coordinators are intended to ensure that appropriate decisions are made about the choice of retrofit design measures for homes. There are few registered Retrofit Coordinators and a relatively low number of Retrofit Assessors when the scale of homes that will need to be surveyed going forward is considered. This could present a barrier to the delivery of retrofits where there is a requirement for these services. It is expected that the number of Retrofit Assessors and Coordinators will however increase as industry gears up to deliver more retrofit works in accordance with the quality requirements of PAS 2035.

Table 2: Number of service providers of various trades likely to serve the South West

	Air Source Heat Pump Installers	Ground/Water Source Heat Pump installers	Solar Photovoltaics installers	Roof insulation installers	Glazing and Door installers	Cavity Wall insulation installers	Internal Wall insulation installers	External Wall insulation installers	PAS 2035 (2019) Retrofit Assessors	PAS 2035 (2019) Retrofit Coordinators
Berkshire	8	7	3	10	7	7	9	6	22	2
Bristol	5	3	9	4	2	0	2	1	9	2
Cornwall	21	19	14	6	11	0	3	3	32	7
Devon	28	19	23	23	22	7	7	16	26	4
Dorset	11	9	11	9	8	7	2	2	18	0
Gloucestershire	23	15	9	4	15	0	2	3	17	1
Hampshire	27	11	18	23	34	17	9	14	18	1
Oxfordshire	14	12	9	0	9	0	0	2	6	0
Somerset	15	8	13	4	8	4	4	4	17	0
Surrey	10	7	12	6	18	3	3	7	21	3
West Sussex	18	11	16	4	14	2	3	3	8	1
Wiltshire	13	9	7	2	4	3	1	5	17	3
Total	193	130	144	95	152	50	45	66	211	24

2.4 Tenant perceptions

A high level tenant engagement exercise was carried out for each landlord, aimed at understanding tenant's perceptions of retrofit measures, their enthusiasm (or otherwise) for particular measures and hence whether some retrofit activities may require more or less activity from the landlord to gain acceptance and buy-in. It also sought to explore (i) how people currently heat their home to gauge how realistic forecast savings prediction based on EPC scores may be, and (ii) people's perceptions of energy and how much they engage with energy (i.e. awareness of fuel bills, appetite for switching suppliers, etc.) in case these factors may influence the viability of some retrofit measures and/ or business models.

Unfortunately, there was relatively low uptake for participation in the engagement sessions. This may itself imply that there is relatively low interest in energy use, bills and home retrofit in general. However, it may be expected that more directed engagement, once specific retrofit measures are chosen for homes, could generate more interest. Feedback from equivalent engagement sessions held for several landlords in the South West found that on the whole households were positive about the idea of any retrofit measures that would help to improve their comfort and reduce their bills. Key findings included:

- Households currently with electric forms of heating (direct acting or storage heaters) typically found it difficult to achieve a comfortable temperature in their home. In many cases, this was due to a reluctance to run the heating as long as may be necessary due to high costs. By contrast, those with mains gas central heating tended to heat the whole home and did not share such complaints. Those with electric heating are therefore likely to be most positive about a potential heating system switch.
- Controllability of heating was a fairly common criticism. Converting homes with electric storage heaters to a heat pump system will allow increased control to provide heating when it is required as well as better individual room control due to Thermostatic Radiator Valves.
- There was anecdotal feedback of homes being under-heated, so their actual savings from retrofit measures may reduce compared to modelled forecasts. In any case, fabric improvements and insulation measures that help retain heat in the home will be beneficial irrespective of the heating regime adopted.
- Some cases of summer overheating were reported in homes, often related to their solar aspect and glazing, or on the upper floor(s). Attention should be paid to providing insulation to internal hot water tanks and pipework to reduce unwanted incidental gains in the summer, and advice provided to occupants on everyday ways to help avoid overheating in their home.
- Windows and doors were commonly flagged as causing draughts, and while the cost benefits of such upgrades are typically modest in EPC calculations, they are evidently highly valued in practice by occupants. In particular, highly thermally efficient units with quality installations (avoiding hidden gaps and thermal bypasses) are important in delivering the intended benefits.
- Many households do not regularly check prices or switch energy suppliers. It may therefore be the case that customers may not mind fixing contracts to facilitate innovative finance mechanisms such as pay-as-you-save.
- On the whole, all potential retrofit measures were viewed quite favourably. There were occasional comments about the potential loss of space from extra loft insulation or internal wall insulation, and concerns about the running costs of heat pumps since they run on electricity. But overall, residents appeared happy to receive any measures that would help improve comfort and reduce energy bills, and were prepared to accept some level of disruption to achieve this. There was also a general consensus that it would be preferred for multiple measures to be carried out all at once to limit disruption and maximise the benefits.

3 Key learning points

Having undertaken the process to design high-level retrofit strategies for 5 pilot landlords in the South West, the following learning points may be of benefit to landlords, and those supporting the design and/ or delivery of domestic retrofit schemes e.g. BEIS and the regional Energy Hubs.

- The key short term grant funding opportunities identified are typically eligible on properties with a current EPC rating of E or below. This aligns with Government aims to prioritise worst performing homes first and households at greatest risk of fuel poverty due to high energy bills. However, much of the stock of the pilot landlords were rated Band D and thus these homes will therefore require alternative finance mechanisms and/ or self-funding to achieve the EPC Band C target by 2035.
- Alternative business models are emerging from innovative solution providers offering retrofit packages linked with finance options essentially based on pay as you save models and comfort plan/ service charges to households. These could be useful models, particularly for homes not eligible for some of the key grant funding mechanisms (e.g. homes already at EPC Band D but requiring further upgrades to achieve Band C or above).
- The resourcing and time required for landlords to develop bids and apply for grant funding should not be underestimated. There is a risk that landlords may not be able to collect the relevant data, derive appropriate retrofit strategies and select appropriately prioritised homes in time to take advantage of valuable funding opportunities that have relatively short turnaround times. Improved certainty regarding the conditions and rates of proposed future/ longer term funding initiatives would be helpful to allow landlords to set out achievable implementation programmes.
- Feedback from landlords highlighted that they do not necessarily have the in-house experience to set up and implement such extensive retrofit programmes. However, in several cases, the value of available short term grant funding to supplement existing RMI budgets for aligned measures (e.g. heating system replacements) could help offset the costs associated with additional staff to manage grant applications and subsequent retrofit programmes. However, landlords may be hesitant to employ staff for this purpose without funding being secured.
- Difficulty to secure supply chains and/ or budget issues in a market with high competition for services may risk the ability for landlords to deliver within grant timeframes once funding is secured.
- Although it is a positive step that several of the prominent Government funding initiatives require retrofit measures to be carried out in line with the PAS 2035 quality standards, there are relatively low numbers of relevant professionals – Retrofit Coordinators and Retrofit Assessors – available in the South West to support implementation to the required standards. This could create a barrier to the delivery of retrofits where there is a requirement for these services.