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# The Role Of Data In Delivering Net Zero Social Housing Retrofit

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2

Delivering net zero social housing retrofit



# Executive Summary

Registered Social Landlords (RSLs) are seen by many policymakers as a potential ‘vanguard’ for net zero housing retrofit[4]. With a concentrated ownership of homes, capacity to manage large-scale capital projects, and sense of mission, they are seen as being the most likely catalyst for expanded demand.

Furthermore, it is hoped that this new demand could start a virtuous cycle of falling costs, investment in R&D, and real progress towards Net Zero. However, progress by RSLs since that ambition was widely articulated in 2009 has been limited, and surveys of their current plans suggest that whatever constraints have applied over the last decade are still in place.



This report is part of a series of evidence based reports and follows on from our report published in January 2020, Retrofit: Towards A Sector-Wide Roadmap. In our latest research, through a data discovery we investigate the key constraints for RSLs in scaling up net zero housing retrofit and to investigate a key hypothesis identified in the sector wide roadmap, that data is a binding constraint in scaling net zero retrofit.

Presenting the findings from this work, we describe opportunities in the use of data to catalyse growth in deep retrofit for net-zero housing. We also detail three key opportunities for data to support net zero retrofit including:

- Supporting greater ambition: using data to support better measurement of net zero targets (referred to as the ‘SAP Hack’)
- Believing in the business case: the role of data and standards in evidencing and sharing data on which retrofit technologies actually work
- Improving market visibility and supplier confidence: through use of open data for housing stock and the use of open contract data standards to remove opacity of demand and improve prospecting for deep housing retrofit for potential financiers and suppliers

These opportunities are presented alongside an exploration of the wider constraints to deep retrofit at scale in social housing, insights into the retrofit decision making process and insights into the retrofit data ecosystem.

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# The Opportunity

Deep Retrofit at Scale, in social housing alone could involve investment in the region of £104bn[2] between now and 2050. An investment of £65bn between now and 2035 has the potential to create over 40,000 new jobs every year[3], contributing to economic recovery post-COVID and the government's levelling up agenda. It would also support ambitions for the UK to be a world leader for green technology and finance[4].

**Yet, despite the economic opportunity, Deep Retrofit at Scale (DRaS) is not happening.** To date, retrofit has been conducted in piecemeal approaches designed to bring the worst performing buildings to intermediate standards (such as Minimum Energy Efficiency Standards). This has led to high volumes of cavity wall and loft insulations with harder to treat properties that require more comprehensive treatments neglected. An impact of this is that the solutions that achieve net zero properties are still poorly understood and the supply chains to deliver them are undeveloped. A good example of this is the 27% of the UK's housing stock with solid walls, where annual installations of solid-wall insulation are currently at less than 15%[1] of the rate required to bring us to net zero. Installations of low-carbon heating lag even further behind, at just 1.5%[2] the required rate.

## Growth of uptake of deep retrofit requires:

Through our research we have identified the following four key factors that are fundamental to the uptake of deep retrofit:

1. Government incentives / mandates
2. Understanding the impacts of combinations of technological solutions across different housing types and trust in their long-term suitability
3. Sufficient trusted suppliers who have the technical skills to evaluate and carry out whole-house retrofit
4. Availability of financing models that incorporate the long-term energy savings of whole-house retrofit

# Data as a Binding Constraint to Market Growth

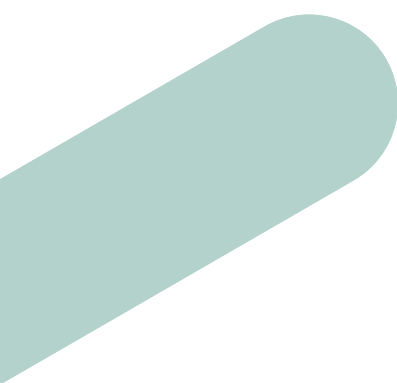
There are several barriers currently preventing deep retrofit at scale:

- Lack of demand from householders and landlords;
- Lack of clear and consistent government policy;
- High costs of retrofit;
- Insufficient capability and capacity throughout the supply chain;
- Lack of financing.

These five barriers interact and reinforce each other. Lack of demand means limited market pull for innovative solutions, keeping volumes low and prices high. Government policy could instantly create demand, but there is uncertainty that solutions exist and can be delivered. Better financing could increase take-up, and drive down costs, but there is no clear market pull.

When analysing the demand and supply side as a catalyst for greater investment in deep retrofit, we looked at their needs, and found:

- **On the demand side**, ‘confidence that solutions can be delivered’, ‘information and knowledge’, ‘a good business case to invest’ and ‘an offer tailored to their needs’ point to **insufficient data about the impacts of deep retrofit solutions and how they apply to existing properties** acting as a constraint on growth.
- **On the supply-side**, ‘a sustainable market’ and ‘information and evidence’ highlight **a need for greater visibility to suppliers of the current housing stock and buyers’ appetite** for business to enable growth.



# The Purpose of This Discovery

The aim of this project was to inform a potential program of work investing in data infrastructure to catalyze growth in deep retrofit.

The key aims for the project were to:

1. **Solve the right problems** - across all parts of the public/private/social sphere, well-capitalised R&D programs have a history of prioritising the cutting-edge solutions which engineers want to build over the tools which customers actually need.
2. **Make use of what already exists** - to maximize the impact for the size of this project, we want to combine and build upon what already exists, whether it is public sector datasets and APIs, existing data standards, private companies solving RSLs' modelling challenges, or coalitions through which parties already cooperate.

The research was approached through a combination of user research with retrofit decision-makers within RSLs, and a desk-based analysis of the existing data landscape.

This document sets out what we learned about the binding constraints on investment in Deep Retrofit by RSLs, and the recommendation for data-focused initiatives to undo those constraints.

## Research Objectives

The objectives of this research can be summarised in the following six points:

1. **Understand what Retrofit means to the user** (Single Measures vs Deep Retrofit) and **how it fits in their organisational strategy**
2. **Map key steps and decisions** users need to take for retrofit to happen (as well as who needs to be involved in those decisions)
3. **Identify what data is required to inform each decision**, what data is currently being used and gaps between what is available
4. **Identify current data barriers** in collecting, maintaining, finding, accessing, trusting, and using data
5. **Identify other barriers** that currently prevent retrofit decisions from being made (financial and non-financial)
6. **Game changers**: Identify key restrictions to retrofit at scale and explore the role data can play innovating in the sector



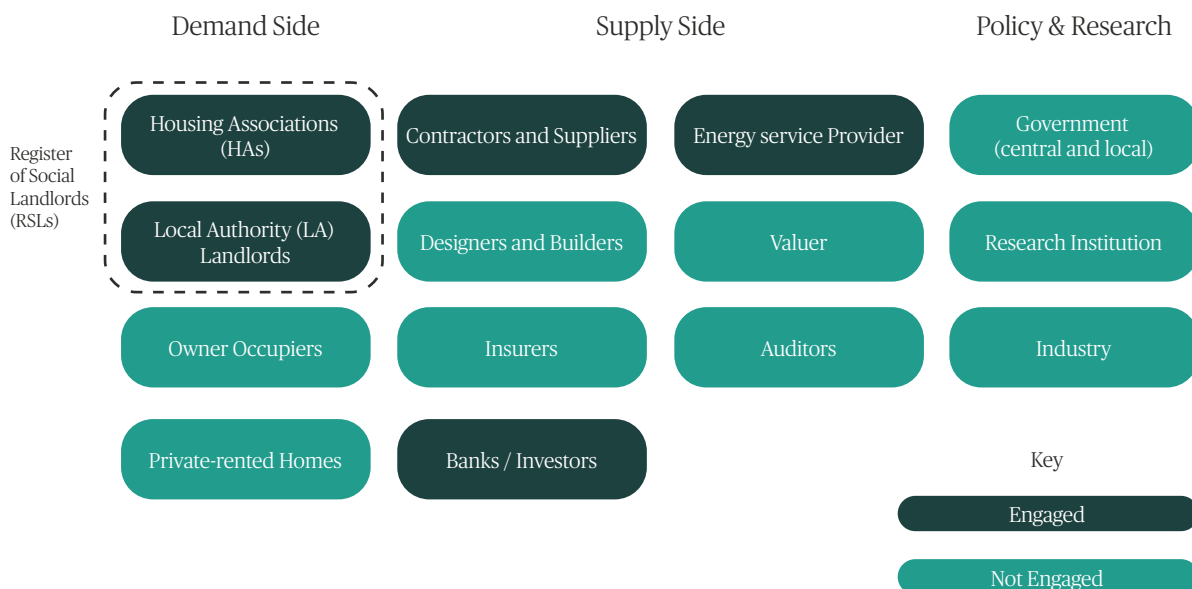
## User Research Methodology - Approach

A combination of **semi-structured interviews, journey mapping, and a prioritisation exercise** was used to gather the best possible insights.

The interviews allowed for more in-depth, qualitatively sensitive information to be shared by the respondents. Whilst the journey mapping gave respondents a chance to describe key processes in visual form, triggering important conversations, and identifying key pain points in the user experience. Finally, the prioritisation exercise asked the respondents to decide which concepts are most important or high priority for them.

## Stakeholders

The diagram below shows the stakeholders, including those that we both did and did not engage with on the demand and supply side. In total, we spoke to **8 housing associations, 3 suppliers, 2 intermediaries, and 1 mortgage lender**. However our focus was primarily on the needs of users from the demand side, to ensure we could gain sufficient enough depth of insight, within a relatively short time frame.



## What does Retrofit mean for Housing Associations and Local Authorities?

- Housing Associations and Local Authorities are more and more aware of the “climate emergency” and keen to reduce carbon emissions and see Retrofit as one important step to progress in that direction.

## How are RSLs developing a strategy around Retrofit?

- Retrofit is starting to become part of RSLs strategy but they are at different points in their journey with most still in a pilot phase, implementing small projects and gathering learnings from them.
- RSLs are currently focused on Energy Performance Certificates (EPC targets), which poorly align with net zero targets, and they are also unclear about Government expectations on when/how to reach Net Zero.

## RSL decision-making insights

The research showed that there are two different moments / processes where RSLs have an opportunity to reflect on Retrofit and make specific decisions on it.

A) annual strategy work, and


B) decisions to launch specific retrofit programmes.

The table below shows the key decisions made at each moment and the decision makers behind them:

Moment		Key Decisions	Decision Makers
A	Annual Strategy Work	<ul style="list-style-type: none"> <li>What is the scale of RSLs ambition for retrofit ( to 2030 / 2050)</li> <li>What does the RSL want to achieve in the near-term (1-3 years)</li> <li>What are the current guiding policies? (e.g. whole house plans vs piecemeal)               <ul style="list-style-type: none"> <li>Are RSLs limited by grant finances or will they develop project financing?</li> <li>Are RSLs working with what technologies and suppliers already exist or will RSLs trt to deliver the markets development?</li> <li>Are RSLs working alone, or building a strategic partnership with others?</li> </ul> </li> </ul>	Sustainability manager  Executive board
B	Decisions to Launch Specific Retrofit Programmes	<ul style="list-style-type: none"> <li>Which properties should be prioritised?</li> <li>Which Interventions should be applied?</li> <li>Which Financial mechanisms are available to fund the initiative?</li> <li>How can we make the case to invest in retrofit?</li> <li>What are the up-front costs of the interventions?</li> <li>What are the long-term benefits of retrofit, in terms of tenant comfort, maintenance programme, energy efficiency?</li> <li>What mechanisms can we use to split the cost of interventions ?</li> <li>What contractors are available to deliver the specific interventions?</li> <li>Which contractors have a good track record at performing these interventions?</li> </ul>	Sustainability manager  Property manager  Renovations manager  Technology and innovation  Finance director  Sustainability procurement  Maintenance

A) Annual Strategy Work

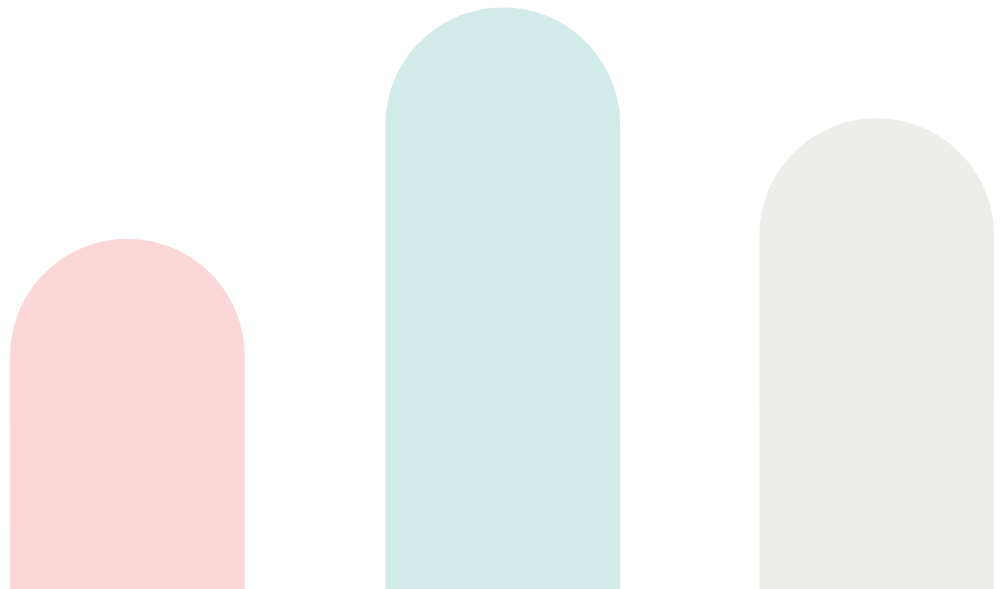
Housing Associations and Local Authorities are more and more aware of the “climate emergency” and keen to reduce carbon emissions. Retrofit is starting to become part of their strategy but are still at different points in their journey. We’ve grouped them in three different types of strategies:



Piecemeal strategy w/ no programme for full retrofit - 4/8	Piecemeal strategy w/ scoping for full retrofit strategy - 3/8	programme includes deep retrofit - 1/8
<ul style="list-style-type: none"> <li>No whole-house approach, focussed on cavity wall and loft insulation</li> <li><b>Retrofit part of wider asset management</b> strategy / divided between different teams</li> </ul>	<ul style="list-style-type: none"> <li>Retrofit happens in ‘fits and bursts’; ideal is fabric first, then heating source</li> <li>New corporate strategy to ‘tackle climate emergency’</li> <li>Planning 30 year strategy but whole-house still not possible currently</li> </ul>	<ul style="list-style-type: none"> <li>Energiesprong approach for hard-to-treat homes part of current strategy</li> </ul>

**Key Insights:**

- RSLs are aware of Deep Retrofit but still on a pilot phase, implementing small projects and gathering learnings from it.
- RSLs are currently focused on EPC targets, which don’t align with net zero targets. RSLs are also unclear about Government expectations on when/how to reach Net Zero.



# The Social Housing Retrofit Journey:

Through our research we have mapped the journey for delivering retrofit programmes and key decisions / pain-points along the journey. At a high level this flows from:

1. Selection of properties and interventions
2. Financing and budget allocation
3. Preparing a business case / project finance
4. Contracting and project implementation



Step	Key decision
1	Which Properties should be prioritised? Which interventions should be applied?
2	Which financial mechanisms are available to fund the initiative? How can we make the case to invest in retrofit
3	What are the up-front costs of the interventions? What are the long-term benefits of retrofit, in terms of tenant comfort, maintenance programme, energy efficiency? What mechanisms can we use to split the costs of the interventions?
4	Which contractors are available to deliver the specific interventions? Which contractors have a good track record at performing these interventions?

## 1. Selection of Properties:

Currently most RSLs use a mix of a proactive and reactive approach to select and prioritise properties that require retrofitting. The proactive approach means RSLs use the housing stock data they have available to identify and prioritise which properties benefit the most from Retrofit. The main data point / method used here to prioritise properties is the SAP rating. But even in cases where there is a clear strategy and approach to proactively prioritise properties, retrofit strategies are often superseded by immediate, reactive asset management requirements generated by customer complaints and requests.



### Decision makers

Sustainability manager  
Property asset manager  
Renovations manager  
Technology and innovations

Finance Director

Sustainability  
Maintenance  
Technology  
and Innovation

Sustainability  
Procurement  
Maintenance

## 2. Selection of Interventions:

There are different reasons that make it hard for RSLs to select Retrofit interventions. The most relevant being:

- The lack of trusted data on real-world performance of retrofit interventions which has led RSLs to conduct their own pilot experiments to collect data on this and
- The fear to implement specific technologies that will become more efficient in the future.

This makes RSLs feel there is no urgency to jump today and see a benefit in waiting in the expectation that technology will get cheaper.

## 3. Building a Business Case

RSLs struggle to put together an attractive business case to invest in Retrofit. Retrofit costs are still too high whilst the benefits are most often captured by tenants and indirect benefits are not always easy to quantify (e.g. reduction of future rent arrears and the potential increase in the value of the property).

## 4. Contracting and Implementing

RSLs have mentioned constraints in terms of the supply of contractors available, saying the market is not matured yet with skills gaps and constraints in terms of the supply available at scale.

# Data Insights

Alongside considering the user journey, this discovery has also identified what data exists for understanding housing retrofit and highlights some of the problems and limitations with these data. We explored how users make use of the existing data, the strategies currently employed to resolve the gaps and what this leaves behind. When there is reference to 'users', it is social landlords that are being referred to.

Through a combination of desktop research to map different data sources available and a series of research interviews with asset managers and sustainability managers, we have captured the following insights.

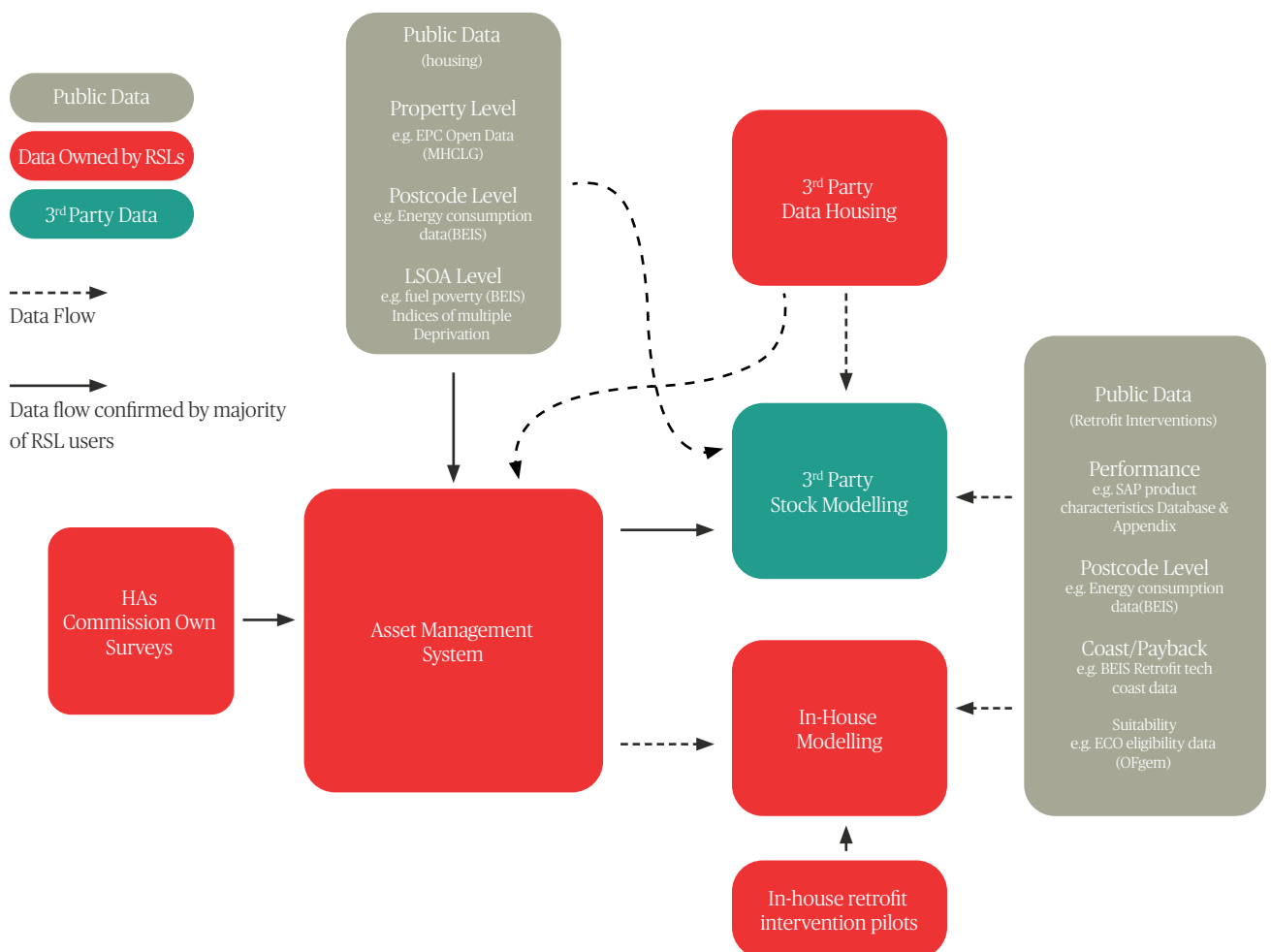
## Two key types of data

The key data that are required for a housing association to develop a housing retrofit strategy are data on housing stock and retrofit technology interventions.

Though there is a great deal of overlap between these types of data, and models and data platforms that attempt to bring them all together, this summary will address each separately, as the strategies employed by housing associations for acquiring these data are quite different.

- For data on housing stock, a user needs to know the current state of their properties, in terms of physical characteristics, condition etc. and the energy technology currently installed in the property. They may also want to know the profile of the household occupying the property and their energy consumption behaviour.
- For data on retrofit technology interventions, a user needs to know what measures are appropriate for a given property, and the effect that these measures will have on the energy efficiency of the property. This clearly requires measured energy consumption data (rather than modelled) related to a combination of property and technology data.

In the image below you can find a data ecosystem map that shows how the data flows between the databases used by social landlords to develop their retrofit strategy. This aims to summarise the data that are available and utilised by housing associations.



## Key Data Insights

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### 1. Housing Stock Data

- User research sessions showed that the collection of EPCs is the primary strategy employed by housing associations to understand their housing stock.
- The data that are publicly available through the EPC open register are not as comprehensive as the data collected during the generation of the certificate.
- Most housing associations listed current understanding of housing stock data as a relatively low concern in comparison to other barriers for achieving growth in the retrofit market, such as information on retrofit technology performance, clarity of government targets relating to achieving net zero carbon emissions, and the cost of retrofit programmes.
- It was noted that the rdSAP (Reduced Data SAP) framework may not be capturing sufficient information about the physical characteristics of properties to understand the suitability of retrofit interventions. For example, the information captured does not provide confirmation that there is sufficient physical space available to install exterior wall insulation.
- Missing entirely from the rdSAP framework is data on the energy consumption behaviour of the occupants of the property or an evaluation of the condition of the property through a framework such as the Decent Homes or Housing Health and Safety Rating System (HHSRS) frameworks. There is limited public access to these data at a property level.

### 2. Data on retrofit technology interventions

- The impacts of retrofit technologies on housing energy efficiency are poorly understood and that this represents a serious barrier to scaling retrofit. This was particularly cited for when technologies were installed in combination, as is required for 'deep' whole-house retrofit intervention strategies.
- rdSAP is a key source of information about the impact of different technologies on properties. These data are housed in the Product Characteristic Database (PCDB), with limited public access to the information underlying the assumptions about each technology.
- The key publicly available source of information on the performance of housing energy technologies is the National Energy Efficiency Data-Framework (NEED) managed by BEIS. However, it contains information about a relatively small subset of the retrofit technologies generally considered for deep retrofit strategies.
- Publicly available data on whole-house retrofit interventions are relatively sparse - it is often in the form of case studies lacking a standardised data structure that is required for analysis.
- RSLs are conducting their own pilot projects to analyse the impacts of deep retrofit solutions on their properties. This suggests that housing associations do not consider the available data sufficient to confidently plan deep retrofit strategies.



## Summary of data landscape insights

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### What data is required in the context of Housing Retrofit?

- Social Housing Providers need access to two types of data in order to create successful deep retrofit programmes:
  - data on housing stock (current energy efficiency, build type, physical characteristics).
  - data on impact of retrofit technologies on energy efficiency of properties.

### What is the primary source of information used by RSLs?

- EPCs are the primary source of information used by RSLs for understanding their stock.
- Access to all of the data generated by a Domestic Energy Assessor in generating an EPC is not uniformly given by accreditation schemes and the data available on the public database is incomplete. Though the majority of housing associations have reported strategies to mitigate this issue, changes to MHCLG's policy on sharing this data would improve public access to the key data on domestic properties.

### What are the challenges RSLs face with the current data sources in use?

- Given the high reliance on EPCs for informing the retrofit strategies of housing associations, a lot rests on their being adequate for the task. One user research participant expressed doubts that they captured sufficient physical information to plan suitable interventions to properties. This possibility should be evaluated and mitigated.
- Publicly accessible data on retrofit interventions, particularly for whole-house measures, is inadequate. Housing associations are almost uniformly conducting whole-house pilot experiments to resolve this data gap. A collaborative approach to the collection and use of the data generated would offer a valuable source of evidence for planning retrofit programmes.
- Currently available public data sources on the impacts of technologies (such as NEED) are impressive in scale, but lack a wide range of retrofit technologies.

# Key Constraints in delivering Net Zero for Social Housing

We sought to identify what constraints whose weakening or removal would really move the system as a whole and catalyse a dramatic increase in Deep Retrofit at Scale (DRaS).

Our user research set out to answer this, focussing specifically on what the constraints to demand from RSLs. We wanted to understand how RSLs decide what retrofit projects to launch, and what barriers they face to undertaking more, larger, and deeper retrofit projects. We were particularly interested in barriers relating to data accessibility, reliability, and comparability.

We conducted interviews with staff responsible for developing retrofit plans, asking about the ambition of existing retrofit programmes, the steps through which they took a plan to approval and execution, where the pain points are in that process, and how they currently use data.

We consistently found that the binding constraints are:

- Ambition - RSLs do not have concrete plans to make the necessary investments to take Deep Retrofit to scale in the absence of government mandate or funding.
- Confidence in the Business Case - RSLs were unconvinced by the existing business case for Deep Retrofit, and particularly by assessments of technology risk.
- Availability of Finance - deep retrofit at scale is a major capital works programme and RSLs considered that they lacked means to finance it, despite most being aware that 'alternative finance' approaches existed.

The interaction of these three constraints is critical. The novelty of the technical approach and the scale of the investment required naturally creates anxiety which is reflected in the high bar set for the business case. External pressure which could potentially overcome this is absent.

# 1: Ambition

Investment of tens of billions in new technology to meet a new policy goal requires board-level commitment across the sector, and ambitious targets. Our research found that beyond the use of EPC ratings, this was not in place but gave some indicators as to how we might use existing data resources to change that. This is primarily a question of regulation, funding, and leadership - not data. However, given the primacy of this issue it is worth asking how better data could help catalyse those.

## Findings:

- All RSLs we spoke to are engaged in retrofitting to meet the EPC C 2030 target, but most have no concrete plans for Deep Retrofit at Scale (DRaS).
- None were engaged in deep retrofit at scale.
- Only 1/8 had incorporated deep retrofit into their plans, but at pilot scale.
- 3/8 had ambitions to move to deep retrofit, but had not made concrete plans and acknowledged that in practice they were **struggling to move away from reactive and piecemeal installations**.

This is not due to a lack of awareness of the need or possibility of deep retrofit. They know that existing plans are inadequate, and are assuming that more ambitious plans will be developed in due course.

### **The focus on the EPC C 2030 target matters because this target is insufficient to achieve net zero, and is displacing Net Zero focussed plans and action.**

Achieving this target will reduce CO2 emissions from social housing by less than 25% of what is required if Net Zero by 2050 is to be achieved<sup>10</sup>. This is in part due to low ambition (EPC C not A), and in part that the orientation of SAP scores (of which EPC bands are a simplified expression) towards affordability rather than emissions fails to reward investment in energy generation and storage, or of moving from gas to electricity in a decarbonising grid<sup>11</sup>. The activity which this target does encourage is the traditional piecemeal measures which RSLs are already comfortable procuring - largely cavity wall insulation and loft insulation. This is a missed opportunity to integrate more ambitious works into each disruptive retrofit activity.

Government targets, existing and anticipated, were the determining factor in what type of retrofit is being implemented, and at what scale. The ambition determining which properties were targeted and how was, for 8/8, achieving the target of 100% of properties at EPC C by 2030. This is a classic SMART target, with the requirement to conduct surveys and report on findings creating a high degree of accountability for boards and executives in RSLs.

Some local authorities and devolved governments have begun setting carbon-focussed targets - running ahead of Westminster. For example, Nottingham's push for Net Zero by 2028, Leeds 2030 Zero Carbon Roadmap, South Cambridgeshire Zero Carbon Strategy and Bristol's One City Climate Strategy.

These pioneers' action plans recognise the key role which addressing the energy efficiency of housing stock will play. For example, Nottingham's action plan notes that homes are responsible for 25% of the City's CO2 emissions, that "current housing stock is a key challenge", and that a local RSL owns 20% of them.

However, existing data does not enable LAs to set and monitor targets for individual RSLs, and track performance against them. They need to be able to measure an RSL's current performance in CO2 emissions per m2 (crucially with a correction for SAP's current estimation of the carbon cost of electricity use). They also need to be able to track changes in performance on the same measure (e.g. "average CO2/m2 for the provider's homes in Nottingham has dropped X% over the last twelve months, in line with commitments". By contrast, LAs can do exactly this for SAP-based targets because the SAP data standard and register allows comparable data to be held and analysed on the performance of RSLs and other key actors against a target if it is calibrated in SAP ratings.

### **Opportunities for Better Data to Help Remove this Constraint**

The quickest and cheapest approach, although not without limitations, is to link the per-property CO2/m2 estimates already available (although not foregrounded) in the SAP register to data on RSL's portfolios and display in a digital tool. We explore the potential of this 'SAP Hack'. A more comprehensive approach - transcending the limitations of SAP - would involve building out a new standard, surveying approaches, workforce, and supporting tools. This is being pursued in the Optimised Retrofit programme in Wales.

### 3: Availability of Finance

Even with a stronger business case, financing for deep retrofit programmes is far short of what is required. Our research suggested widespread awareness of potential solutions but little willingness to be the first to experiment with alternative innovative finance solutions.

#### Findings:

- The potential financial costs of deep retrofit programmes for RSLs are far beyond the budgets they currently have to allocate. All RSLs we spoke to currently rely almost exclusively on government grants to carry out even single measure interventions.
- 6/8 specifically acknowledged the need to develop sustainable models that would remove the need for government funding therefore RSLs recognise the need to move beyond government funding to carry out deep retrofit programmes. Moreover, RSLs are aware of the potential of project financing mechanisms but are not currently testing them.
- Cost sharing mechanisms with tenants would break the “Split Incentive”<sup>18</sup> issue and provide financing for retrofit projects. However, these are viewed with nervousness at Executive level due to their potential to harm relationships with tenants. None of the organisations we interviewed had concrete plans to use alternative finance mechanisms.

#### Opportunities for Better Data to Help Remove this Constraint

This is not, fundamentally, a data infrastructure issue however financing does typically bring very high demands for data quality and there are likely to be needs for data infrastructure work in this space which will become clearer as preferred financing routes are articulated.

Our recommended next step would be further analysis of innovative finance solutions as being explored through a separate piece of work by CPC ‘Innovative financing’s potential to drive sustainability in the built environment sector’. This should be followed by identifying a potential pilot and showcasing to help build confidence in the social housing sector in exploring alternative models. the limitations of SAP - would involve building out a new standard, surveying approaches, workforce, and supporting tools. This is being pursued in the Optimised Retrofit programme in Wales.

### 4: Trust and Transparency Across the Demand/ Supply Divide

RSLs view supply for deep retrofit as immature while suppliers need to see evidence of enduring demand in order to expand. The market is fragmented and opaque.

#### Findings:

- RSLs do not see their established supply chains as capable of delivering Deep Retrofit. 6/8 claimed they do not currently procure from any contractors who they believe would be capable of delivering a deep retrofit programme and that they would not know where to procure these services from.
- Suppliers are said to lack confidence to invest in Deep Retrofit due to uncertainty about current and future demand.
- The PAS2035 certification scheme and Trustmark are viewed positively by sustainability managers, but provide limited information to a commercial buyer. Their Data Warehouse<sup>22</sup> covers all ECO3-funded work, and currently contains more information than is made available to market participants (e.g. event-level contracting history of registered suppliers, linked to specific buildings). They have an active program to explore ways to make this more useful to landlords and tenants through digital tools, and channel partnerships, and are welcome to suggestions as to how they could better meet the needs of both RSLs and Energy Services providers.

#### Opportunities for Better Data to Help Remove this Constraint

In other public sector markets for innovative goods and services, open contracting data has been an effective tool for bringing transparency to a market. The key challenge is not the standard or the portal, but making it easy and attractive for buyers to share their data. Procurement frameworks have achieved this in some markets - offering access to more sellers and competition as well as faster procurement.

## 5: Housing Stock Data

Frustrations with the data available for planning retrofit were common for sustainability managers, but were described as secondary to other constraints noted above.

### Findings:

RSLs have access to modelling tools, but have varying levels of information about their housing stock which they can input into their models. 5/8 RSLs reported use of the Parity Projects Portfolio<sup>20</sup> product, which enables access to open data on housing stock (e.g. EPC open register) and provides modelling tools for planning retrofit programmes. Interviewees estimated that they held current EPCs on between 50% and 100% of their properties. All were confident that their plans for surveying would meet their needs for stock data, but defined those needs primarily in terms of holding in-date EPCs. However, holding EPCs is not the same as having comprehensive stock data.

As a result, the process of understanding what the path to Net Zero could be for a portfolio is slow and uncertain, and so is identifying pockets of stock for a large-scale Deep Retrofit project. In addition, public data on stock characteristics (e.g. EPC open register) does not come linked to data on what stock is owned by which RSL (if any) and so its value as a prospecting tool for DRaS promoters (identifying pockets of viable stock from outside the RSL) is limited.

Fundamentally, this comes back to ambition - technical solutions exist for capturing and managing this data, and RSLs investing in large-scale surveying, but they are focussing on meeting the EPC C 2030 target and not on DRaS. DRaS represents, with its requirement for 'Big Up Front Design', a step-change in the detail and reliability of data required centrally.

Culture, processes, and tools in many RSLs have evolved to meet a far simpler information challenge and organisational capacity to provision data suitable for an ideal DRaS process is an issue for many RSLs. In particular, resourcing of data governance and data management appear to be key constraints, which complicates delivering impact from standards-based solutions.

### Possibilities for Better Data to Help Remove this Constraint

Typical solutions to this type of problem either tackle the problem head-on (with investment in skills, systems, and audit), or work around it by finding ways to limit the reliance on up-front accuracy. The Optimised Retrofit programme<sup>17</sup> in Wales is taking the first approach - developing new standards, tools, and workforce for its surveying programme as well as for ongoing sensor-based data capture and data management.

The Optimised Retrofit approach is ambitious, but relying on both its success, and its rapid adoption around the UK (despite the presence of conflicting targets, standards, and accreditations) is high risk. We recommend work in parallel to consider how to help RSLs and Energy Services providers work around the limitations of the existing system.

DRaS is still in its infancy in the UK. A detailed and reliable picture of suppliers' data needs will only emerge from deep and ongoing involvement in the first projects, and is likely to evolve over time - not least in reaction to new contractual or technical means for working around data gaps.

# Conclusion and next steps

This research, by focusing on understanding the particular needs of retrofit decision makers in social housing has identified a number of insights, into some of the key constraints for delivering net zero housing retrofit including:

- **Ambition:** there are limited incentives or targets to focus on net zero and a lack of tools that enable that focus to deliver net zero in practice. There is a focus on delivering short term incremental improvements focused around particular measures and short term EPC band C targets rather than comprehensive, outcome focused multi-year net zero strategies.
- **Belief in the business case:** a lack of coordinated, standardised evidence to prove what retrofit technologies actually work combined with hesitance not to move ahead of potential regulations that might mandate particular technologies, is constraining investment in deep retrofit.
- **Availability of Finance:** Even with a stronger business case, financing for deep retrofit programmes is far short of what is required. Our research suggested widespread awareness of potential solutions but little willingness to be the first to experiment with alternative innovative finance solutions.
- **Trust and Transparency Across the Demand / Supply Divide:** RSLs view supply for deep retrofit as immature while supply need to see evidence of enduring demand in order to expand. The market is fragmented and opaque.
- **Housing stock data:** Frustrations with the data available for planning retrofit were common for sustainability managers with an overreliance on EPC data rather than what is needed to support deep net zero retrofit, but were described as secondary to other constraints noted above.

We have also identified, the role of data in supporting delivery of net zero, including a number of opportunities that data provides in addressing some of the key market constraints in net zero housing retrofit:

- **Supporting greater ambition:** using data to support development and measurement of net zero strategies and targets (the 'SAP Hack').
- **Believing in the business case:** the role of data and standards in evidencing what retrofit technologies actually work.
- **Availability of Finance:** The exploration, piloting and showcasing of innovative finance solutions as being explored in CPC's parallel work on innovative finance could help build confidence in the social housing sector in exploring alternative models. Financing typically brings very high demands for data quality and there are likely to be needs for data infrastructure work in this space which will become clearer as preferred financing routes are articulated.
- **Improving market visibility and supplier confidence:** through use of open data for housing stock and the use of open contract data standards to remove opacity of demand and improve prospecting for deep housing retrofit.

As a next step we invite all interested individuals and groups to comment on the insights and opportunities identified and get in touch if you would like to explore these opportunities further. Connected Places Catapult will continue to flesh out the opportunities ideas to bring them to a stage where we can work with a core active group and seek the necessary funding to progress and help the community to come together to find practical ways to deliver.

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London  
One Sekforde Street,  
London EC1R 0BE

020 7952 5111

info-LDN@cp.catapult.org.uk  
Milton Keynes  
The Pinnacle,  
170 Midsummer Blvd,  
Milton Keynes MK9 1BP

01908 359999  
info-MK@cp.catapult.org.uk

Visit our website  
[cp.catapult.org.uk](http://cp.catapult.org.uk)



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