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LIVERPOOL CITY REGION COMBINED AUTHORITY

Social housing retrofit: building a dynamic delivery programme

Dr Wayne Shand
Inner Circle Consulting

Policy Briefing 2(12)

July 2022

The Liverpool City Region

Social housing retrofit: building a dynamic delivery programme

Key takeaways

1. The scale and cost of social housing retrofit needed to achieve net zero targets requires a new approach to funding, financing and delivering housing improvements.
2. Major capital investment in social housing retrofit provides an opportunity to capture skills, employment and economic benefits for local communities. These benefits should be built into retrofit programmes, with targets set for contractors during procurement processes.
3. Effective use of data can drive dynamic programming of delivery and build a framework to enable priority setting and financial planning.
4. The need for social housing retrofit provides an important incentive to accelerate skills training to reflect changing regulations and technology in green construction.
5. Wider partnerships of social housing providers, contractors, colleges and government are needed to reach net zero goals at scale.

1. Introduction

UK government has set a binding target to reach net zero greenhouse gas emissions by 2050. Decarbonising housing forms a key element of delivering this national goal. In the UK, residential buildings contribute around 15 per cent of overall greenhouse gas emissions (HCLG Committee 2021), with some 29 million existing homes needing to be made low-carbon, low-energy and resilient to climate change (Committee on Climate Change 2021). Social housing, provided for rent by housing associations and local councils, constitutes a significant part of the housing stock.

In England, there are some 4 million properties in the social housing sector, representing around 17 per cent of homes (BEIS 2021). While social housing has, on average, better energy performance than homes in the private rented sector, with for example 62 per cent of social housing having wall insulation compared to 32 per cent of private rented housing (HM Treasury 2021), delivering decarbonisation is a major challenge for local councils and housing associations.

This policy briefing explores the practical aspects of designing a social housing retrofit programme through a case study of the London Borough of Camden.

The briefing draws on work undertaken by Inner Circle Consultants with Camden Council in 2021. It focused on two primary outcomes: firstly, the design of a dynamic programme to phase retrofit works to the Council's stock of 33,000 properties; and secondly, enabling the Council to maximise the local employment, skills and economic impact from the major programme of retrofit capital expenditure.

2. Social housing and net zero ï meeting the challenge

Decarbonisation of social housing presents a range of financial, technical and operational challenges for councils and housing associations. These challenges are exacerbated by both the scale of the task and by the diversity of social housing portfolios, which within local areas can range from individual historic street properties through to large housing estates.

The unique configuration of place requires the design of specific long-term (10–30 years) programmes that are locally tailored, financially affordable, technically coherent and deliverable by a construction sector which is experiencing rising growth in demand.

As set out by Clare Rainsford of Onward Homes in a recent Heseltine Institute policy briefing (PB206), there are three core elements to decarbonising existing dwellings: reduce energy consumption;; reduce energy demand; and install low carbon heating. The most effective way to achieve energy efficiency gains is through whole-house retrofit, where improvements are made simultaneously to the fabric of the building and to the heating method.

However, this holistic approach is expensive and can be disruptive to tenants, meaning that a more incremental approach, which prioritises fabric improvements plus heat decarbonisation is likely, depending on the configuration of the housing stock.

Key elements of delivering net zero housing are:

- improvements to the energy efficiency of dwellings through installation of internal or external wall insulation, reducing heat loss through floors and roofs and upgrading of windows and doors;
- replacement of gas boilers with ground or air source heat pumps, or electric boilers that draw energy from renewable sources; and
- where appropriate, installation of energy micro-generation systems, such as solar panels.

Making these improvements across the social housing stock presents a number of challenges.

Firstly, funding of social housing retrofit is a major issue for councils and housing associations. While private finance is available in the market, existing models of repayment based upon future income streams from energy savings are untested, creating perceived risks for both lenders and landlords. Research undertaken for the National Housing Federation (Savills 2021) indicates that, in addition to existing planned expenditure, £36 billion is needed to bring all housing association homes up to a minimum EPC C energy rating and to install clean heat technology in all 2.7 million housing association homes.

This scale of funding is unaffordable within existing public budgets and the market has 'first-mover' concerns about whether savings can be achieved to meet repayments. While government has committed to grant funding a number of policy initiatives (HCLG Committee 2021), a new financial model for social housing retrofit is required that gives confidence to lenders and simplifies access to public grant, tax relief, loan guarantees and borrowing against future revenue and savings.

Secondly, the market is not ready for large scale retrofit programmes. There is an uneven distribution of construction firms across the UK with the capacity and technical expertise to carry out the net zero works needed. Also, businesses are wary of sudden changes in national policy that reduce certainty of funding, causing a reluctance among SMEs to invest in capacity ahead of explicit client demand. The construction sector has called for better strategic planning at a national level and support to accelerate the preparedness of firms to deliver net zero (CITB 2021).

Similarly, there is a limited national supply chain in the manufacture and provision of net zero materials and technology. For example, a majority (68 per cent) of air source and ground source heat pumps used in the UK are imported (BEIS 2020). Significant sector and supply chain development is needed to enable the UK to operate at a scale to achieve the net zero housing targets.

Thirdly, the impact on labour and skills. The adoption of new standards and green construction techniques to build and retrofit housing has significant implications. While there are some new skills needed for net zero, in areas such as carbon assessment, retrofit co-ordination and heat pump installation, most demand will be met through the adaptation of existing skillsets. As shown in Figure 1, many of the new competences for net zero are aligned with 'traditional' construction trades and can be addressed through the targeted delivery of in-work short course training and integrated into vocational training curricula. The key challenge for the construction sector is the pace of transition to new and updated skills to meet anticipated demand and avoid shortages that will slow the ability of the sector to deliver housing retrofit at the needed scale.

Core Net Zero	Existing Skills	Updated Skills	New Skills
Heating replacement of gas heating systems	Plumbing and heating Gas installation HVAC Building services engineering Mechanical engineering	Air and ground heat sources and pump installation Refrigeration (heat pumps) Low temperature heating Groundwork / service pipes Electric boiler systems Plant system design	Whole house heat assessment Heat installation design Building Information Modelling Installation and use of smart meters
Insulation improved thermal efficiency of homes	Plastering Drylining Thermal Insulation Insulation and building treatments	Internal insulation External insulation Passive fire protection Technical accuracy	Whole house heat assessment 3D digital measurement Off-site design of insulation
Fenestration reduce heat loss through doors and windows	Glazing, window and door fitting Carpentry and joinery Specialist fenestration	Thermal efficiency measures Technical accuracy	Whole house heat assessment Window and door unit design
Microgeneration installation and management of PV systems	Multi skilled Electrician Plumbing Roofing	Understanding of PV systems Installation certification Updated health and safety	Installation and use of smart meters

Figure 1: Changing skills requirement for Net Zero

While most elements of social housing retrofit are about physical improvements to properties, it is important to remember that achieving energy efficiency gains is a co-production between the landlord and the tenant. Ensuring that individuals understand both the goals of net zero and how to best manage energy use in the home is essential to realising the full environmental benefits of capital investment. Including tenant engagement, consultation and education into the delivery of retrofit schemes is vital to avoid significant under-performance of energy efficiency improvements.

3. London Borough of Camden housing retrofit

Camden is a central London borough, with a resident population of some 279,000 people in 2020. It forms a vibrant and major part of the London economy, with 34,000 businesses and 389,000 jobs. Despite the scale of economic activity, the borough has areas of significant deprivation, with around 15.3 per cent (one in six) of households workless, compared to 11.3 per cent for London (ONS 2020). Camden Council declared a climate emergency in November 2019.

Camden's climate action plan estimates that the 33,000 properties within its social housing stock are responsible for around 10 per cent of the direct greenhouse gas emissions of the borough (ibid). Working with Inner Circle Consultants, the Council has developed a programme to retrofit its housing stock, deliver energy efficiency improvements that contribute to its net zero targets and use the capital expenditure to generate lasting employment, skills and economic opportunities for residents. The key elements of the programme are as follows.

Building a Dynamic Programme

The first step to deliver a large-scale social housing retrofit programme is to mobilise existing data to create a detailed profile of the housing stock. As most councils lack comprehensive use data, there may be an initial reliance on modelled data, which will need to be tested as the programme moves into delivery to accurately quantify costs and carbon savings. For Camden, building a dynamic programme involved the following.

- Assembling available base data on the condition and energy efficiency rating of all properties. Bringing together existing housing asset management information into an interactive database able to sort and prioritise properties for net zero investment.

- Creating a 'roadmap to retrofit' that provides indicative costs of delivery and establishes criteria to group and select homes for heating, insulation, glazing and microgeneration works.
- Establishing a timetable for batches of works (see figure 2) to determine funding sources and procurement requirements.

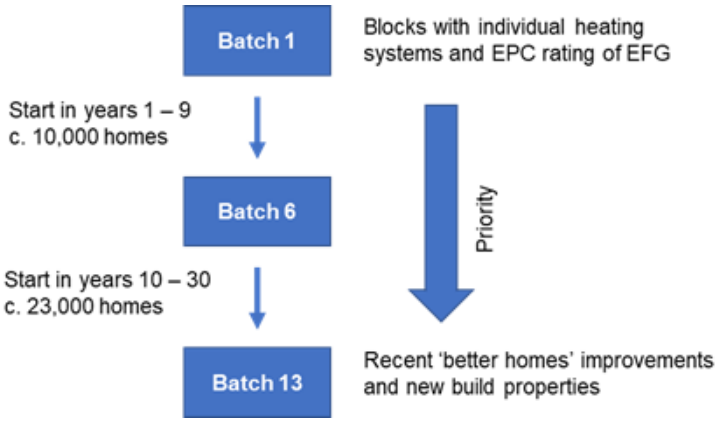

Figure 2: Delivery across 13 batches of work

Refining Procurement Arrangements

Procurement arrangements must be fit to deliver the scale of works at the right quality, within a partnership approach to realise required local economic benefit outcomes. In Camden, the procurement arrangements were reviewed through the following actions.

- Testing the existing housing contractor frameworks for suitability against net zero delivery requirements. Identifying whether framework contractors had the scale, technical qualifications and capacity to deliver retrofit works.
- Determining how far employment, skills and local economic benefit outcomes are embedded in procurement assessment and contract delivery process. Improving procurement scoring criteria to give adequate weight to achievement of jobs and skills outputs through the delivery of net zero improvements.
- Building scale through partnerships with London councils and housing associations and strengthening relations with contractors and supply chain organisations to make a market for net zero.

Capturing Employment and Skills Benefits

To realise the full local benefit of capital investment, it is essential to develop a clear framework, at an early stage in the contracting process, to ensure skills and economic outcomes. In Camden, data from the dynamic programme was used to define potential employment and qualifications outcomes that could be achieved by contractors, using the following steps.

- Breaking down the batches of work to estimate total workforce requirements, additional entry or training posts and labour replacement. This was refined to determine demand by skill types in relation to heating, insulation, glazing and microgeneration works – illustrated in figure 3.
- Identifying requirement for new and adapted skills among entry and existing workforce members to deliver high standard net zero installation.
- Aligning existing employment advice and training provision, such as the Kings Cross Construction Training Centre, to engage and support residents into jobs and training. Also including Camden's Direct Labour Organisation as a potential deliverer of net zero works to capture more local employment benefit, directly skill the workforce and accelerate access to supply.
- Discussion with colleges and training providers to identify existing capacity to meet skills demand and identify areas for curriculum development or capital investment in equipment and facilities.

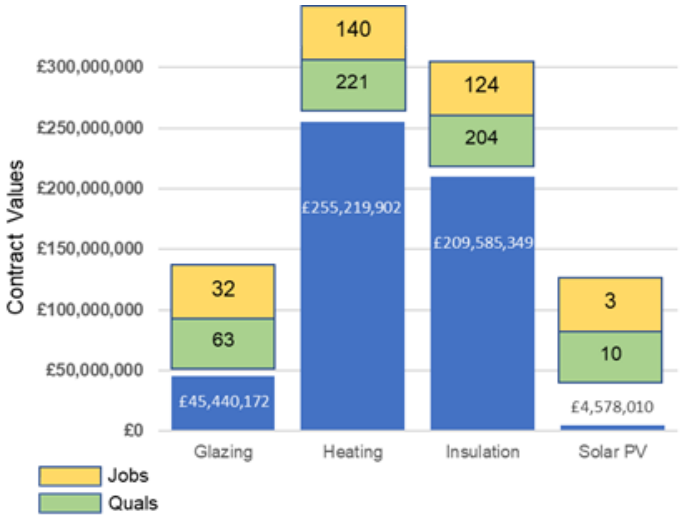

Figure 3: additional jobs and qualifications by expected work batch

Programme Governance

The size and timescale of the Camden retrofit programme underlined the importance of effective governance arrangements. Strong external partnerships with stakeholders are essential for all aspects of programme planning and delivery, as is cross-departmental working within the council. Social housing retrofit requires input from council housing, finance, economic development, education and environmental services that can be siloed within corporate structures. For the Camden net zero programme, arrangements included the following.

- Establishing internal governance and delivery structures, across the council, to create the capacity and resource needed to realise the net zero programme.
- Building external partnership groups to input into the development of the programme and support ongoing delivery. Key stakeholders included major contractors, colleges, the Greater London Authority and neighbouring councils.
- Focusing on community engagement to raise public awareness of the planned investment in housing and prepare residents for the works and the opportunities that would be generated by the net zero programme.

4. Policy implications

Despite the ambitions for retrofit of social housing being relatively clear, the processes, preparation and market for delivery are immature, creating a lag in responsiveness affecting the construction sector skills and supply chain. Councils and housing associations have a vital role to play in driving the delivery of energy efficient social housing, but need stronger engagement by central government on issues of long-term affordable finance, mechanisms to accelerate skills transitions, green building standards and incentives to build a domestic supply chain in the materials and technology needed to deliver housing net zero.

There should be a clearer alignment of public policy to maximise the opportunity presented by social housing retrofit to not only achieve climate goals, but make a substantial contribution to post-Covid economic recovery and the Levelling Up agenda. Increasing the pace of devolution of skills and employment budgets to encourage the development of bespoke training and employment schemes targeting construction workers is vital to avoid skills shortages compounded by the loss of migrant labour in the sector.

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Heseltine Institute for Public Policy, Practice and Place
University of Liverpool, 1-7 Abercromby Square, Liverpool, L69 7WY

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About the authors

Dr Wayne Shand is a Visiting Fellow at the Heseltine Institute and an Associate Technical Director for Inner Circle Consulting. He specialises in urban economic development and poverty reduction, working in the UK and internationally on policy and service design.

Inner Circle Consulting is a practice working with like-minded civic and community leaders to design and deliver better cities, towns and places. Inner Circle tackles the most difficult urban challenges by cooperating, co-learning and co-designing services with client partners. Further information on Inner Circle Consulting can be found at www.innercircleconsulting.co.uk.

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