



Decarbonisation in social housing: From concept to delivery

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The Liverpool City Region

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Key takeaways

1. Social housing providers will play a major role in decarbonising the UK's housing stock, particularly in areas such as Liverpool City Region where there is an abundance of older, energy inefficient housing.
2. Housing is a major contributor to the UK's greenhouse gas emissions. Buildings account for 17% of total UK direct emissions, of which 77% is contributed by homes. Reducing this impact is crucial if the UK is to achieve its decarbonisation targets.
3. Onward Homes and other social housing providers are investing in retrofit and other energy saving measures. However, policy guidance from government is currently unclear in many areas, and there is a need for a more defined pathway to decarbonisation for the social housing sector.
4. In Liverpool City Region, ensuring a just transition to cleaner heating will be crucial. Without the right support, swapping boilers for heat pumps is likely to result in higher energy prices for residents already struggling.
5. Decisions made now will impact on the decarbonisation trajectory of Liverpool City Region, and the UK. It is therefore crucial that clear guidance and expectations are established for social housing providers engaging in decarbonisation efforts, as well as financial support.

1. Introduction

Onward Homes is a leading North West social housing association with properties in Liverpool City Region, Greater Manchester, Lancashire and Cheshire. Our stock includes Georgian properties, terraces built before the first world war, 1960s tower blocks, and modern flats and houses. We also have extra care and sheltered housing facilities.

As our housing stock sits across several regions, Onward is subject to a range of differing climate emergency targets. The Greater Manchester Combined Authority (GMCA) has declared its ambition to achieve net zero by 2038, Liverpool City Region Combined Authority (LCRCA) has set a target of 2040, while other North West local authorities have declared climate emergencies, but have not established definitive deadlines for decarbonisation.

Housing is a significant contributor to greenhouse gas emissions in the UK. Buildings account for 17% of total UK direct emissions, of which 77% is contributed by homes (Climate Change Committee 2020). The social housing sector in England provides over four million homes for around nine million people, meaning there is huge potential for the sector to reduce the overall carbon impact of housing.

Because social housing is required to adhere to stringent regulations such as the Decent Homes Standard, it tends to be more energy efficient than the private rented sector. Over the next few years a raft of legislative and policy changes, set out in the government's Heat and Buildings Strategy, will require major investment from housing providers and present a huge opportunity to contribute to the decarbonisation agenda. Research from Savills estimates that £3.5bn per year of investment will be needed from the housing sector to achieve net zero (Savills 2020).

To achieve decarbonisation, Onward and other social housing providers will need to proactively reduce emissions while ensuring we keep our customers' homes warm and prevent heating costs rising beyond affordable levels. However, there are currently several barriers to achieving this, outlined in the next section.

2. Decarbonising existing homes

It is widely accepted that the best way to tackle decarbonisation of existing homes is to follow the energy hierarchy. The rationale is as follows:

- First, aim to reduce energy consumption by addressing the building fabric, for example by reducing heat loss through walls, roofs and floors.
- Second, reduce demand for energy by encouraging careful use, enabled by tools such as smart meters.
- Third, install low carbon heating systems, for example by replacing gas boilers with low carbon alternatives such as heat pumps.

Only after taking these steps should the source of energy be considered, and renewable options such as solar panels installed.

Fabric retrofit

There are three primary options when considering fabric enhancement:

- External wall insulation (EWI)
- Internal wall insulation (IWI)
- Cavity wall and loft insulation

These options need to be carefully selected to suit each home. External wall insulation is the most effective measure, saving 19 kWh of gas per square metre in houses, and 25 kWh/m² in flats (NEED 2020). However, for social housing providers, external wall insulation is complex. How, for example, does a housing provider install it if it owns some but not all homes on a street?

Internal wall insulation provides an alternative, but can result in considerable disruption for tenants – rooms need to be cleared, skirtings and plug sockets removed, and planning permission is required if a building is listed. Cavity wall and loft insulation can be added, but these measures tend to produce only incremental energy savings.

Low carbon heating

The UK Government has set an objective to install 600,000 heat pumps per annum (Preece and Ehsan 2021). Currently, Energy Performance Certificate (EPC) assessments, which use Standard Assessment Procedure (SAP) as a calculation methodology, do not recognise heat pumps as a clean technology. This will no doubt change with the updated Building Regulations, but investment decisions are being made now.

The Government has acknowledged that supply chains cannot currently support rapid rollout of heat pumps due to skills shortages and other supply issues. However, in the longer term, there are other barriers to installing heat pumps that need to be addressed.

Onward and other housing associations carry out routine boiler replacements on a regular basis, with new boilers installed now potentially in use for up to 25 years. The cost of a boiler is currently much lower than heat pumps, and the capped price of electricity (21p kWh at present) much higher than the cost of gas (4p kWh). Any switch from boilers to heat pumps is likely to significantly increase customer bills, and increase maintenance costs. Transitioning to heat pumps will therefore require significant investment and incentives from government to support our customers.

Onward has recently reviewed potential options for replacing large boilers in extra care units with air source heat pumps (ASHP). At present this switch is not viable for several reasons, particularly capital cost, the space required for installation, reliability and temperature. We are therefore exploring hybrid options, using boilers as the primary source of heat and ASHP as backup. Clearly, this does not fully enable us to meet our decarbonisation objectives, and other social housing providers will face similar dilemmas.

3. Considering renewable energy

Unless residents or landlords can afford a full house retrofit, renewables should be the very last part of the jigsaw in the decarbonisation journey. However, renewable energy will form an important part of the decarbonisation mix for housing over the coming years.

Not all homes are appropriate for photovoltaic solar panels (PV), and roof space is a particular issue for many homes. Wind turbines meanwhile are often ill suited due to homes being obstructed by trees and other buildings. At present there is little clear guidance from government on the role of this kind of technology in reducing the carbon footprint of housing.

Will, for example, the national grid be decarbonised to such an extent that there will be no need for individual renewable schemes for homes? Will there be an opportunity for community renewable schemes, or will excess renewable energy generated locally be used to supplement demand elsewhere? Housing providers and government at a local, city-regional and national level will need to work together to address these issues.

In Liverpool City Region, Onward owns a number of beautiful, listed Georgian homes. Retrofitting these homes in a manner that is respectful to their heritage will be a challenge. We will need to work closely with planners and heritage representatives to ensure decarbonisation is implemented in a considered way.

4. The way forward for social housing providers

Onward is committed to decarbonisation, but this is balanced with our responsibility to customers to ensure their heating is affordable and reliable. Currently, the policy environment is not supportive enough for social landlords looking to rapidly decarbonise their housing stock. With customers facing a winter of rising fuel and energy costs, we need a firm plan to ensure a fair transition to net zero.

Greater Manchester Housing Partnership, which represents the Greater Manchester social housing sector, estimates that billions of pounds worth of investment will be required to achieve net zero. A similar figure is likely for Liverpool City Region. Where is this investment going to come from?

Currently, registered providers are expected to compete for funding to retrofit homes. Applications are time consuming and costly, requiring extensive upfront work. Many smaller landlords do not have the resources or expertise to access these funds. The slow drip feed of funding means retrofit supply chains are not able to scale up at the pace required. It will be harder to persuade private landlords, who are not regulated in the same way as housing associations, to invest in decarbonising technologies.

Energy Company Obligation (ECO) funding is available, but this currently only focuses on properties with an EPC rating below D, excluding a large proportion of housing stock. Furthermore, the processes for applying are complicated and differ between energy providers.

This demonstrates the complex web of funding for retrofit, and the need for government to develop a single central mechanism or allow local and city-regional government to take ownership and develop funding systems based on identified local needs. Currently, the system is akin to shopping at five separate supermarkets to buy ingredients for one meal.

5. Focusing on Liverpool City Region (LCR)

LCR has declared a climate emergency, and an objective to achieve net zero by 2040. Onward has a great working relationship with partners in the combined authority working on decarbonisation and other related issues, who have provided invaluable support. However, more political clarity, funding and integrated policy is needed at all levels to support this joint effort.

If net zero is to be achieved, clear standards are required over a consistent period. Previously, new build standards stipulated that all homes should be zero carbon by 2016, applying a defined standard in the Code for Sustainable Homes. However, these standards were scrapped in 2015. There are now few clear retrofit and new build design standards, and approaches across the UK are inconsistent. Housing associations are required to interpret a variety of different policies when planning for investment. More certainty is needed.

However, there is no need to reinvent the wheel. Extensive work has already been undertaken to outline the kind of support that would speed up decarbonisation efforts. The C40 Cities group of mayors and leaders, for example, has established a private building efficiency network to explore issues such as the data needed to underpin retrofit efforts (C40 2021).

Clear and integrated policy at local and regional level would focus on issues such as electric vehicle infrastructure, and be implemented through local plans and spatial development strategies.

The net zero agenda is moving fast. The decisions we make now in 2021 will influence the success of LCR's trajectory for years to come. Housing providers need to be singing from the same hymn sheet, working with experts and understanding the policy environment.



Image: Onward Chief Executive Bronwen Rapley and colleagues identify opportunities for existing buildings (Credit: Onward)

6. References

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