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Resolve data poverty to combat fuel poverty

Making the case for a data-driven response from Housing Providers to the cost of living crisis

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Introduction

The cost of living crisis caused by soaring energy prices, high inflation and wage stagnation is affecting households all over the UK and is predicted to push millions into fuel poverty this winter.

Rising energy prices disproportionately affect low-income households, as energy bills typically account for a higher proportion of their disposable income. The consequences for households living in poverty who also live in energy-inefficient housing (EPC band D or lower) are considerable and there are currently over 2.2 million social renters in those circumstances. Despite their head start when it comes to energy efficiency upgrades, the social housing sector is likely to be among the hardest hit by rising energy bills.

Faced with this challenge, it is vital that social housing providers maintain focus on the strategies and approaches that have made a difference in the past decade: identifying and prioritising the right homes, and the right improvements, to deliver maximum impact within available budgets. Yet this seemingly simple process is made complex by the lack of accurate, comprehensive, and up-to-date data available on social homes. Every stage from strategising, to bid writing, to execution, is reliant on a quantity and quality of data that the EPC register, and its 10-year-old methodology, is unfit to supply.

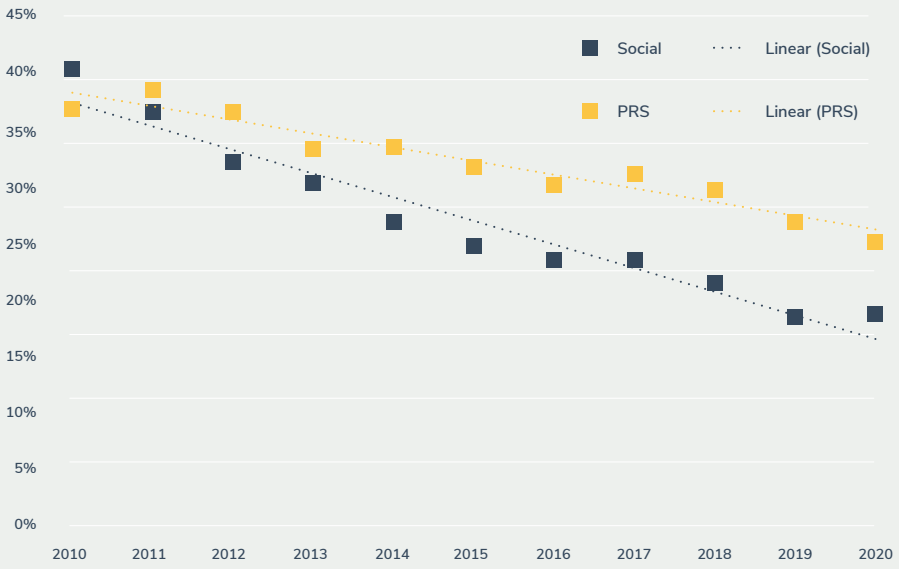
Collecting more data, updating out-of-date databases and calibrating for accuracy are three simple but critical steps to reversing this situation. A comprehensive and accurate view of the efficiency and environmental profile of a property portfolio is now a vital tool in the fight against both climate change, and fuel poverty.

Reversing a decade of progress

The social housing sector has delivered strong progress in improving the efficiency of properties.

In the last 10 years, the sector has more than halved fuel poverty, from 40% to 19%, whilst the Private Rented Sector (PRS), which supports more households, has reduced by only a third from 37% to 25%. This has been achieved against a backdrop of reduced, not improved funding, as Cameron's well documented 'Cutting of Green Crap' led to energy efficiency installations falling off a cliff after 2012.

Figure 1: the Social Housing sector has reduced fuel poverty at a far faster rate than the PRS over the last decade



Source: BEIS, 2022

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The cost of inefficiency

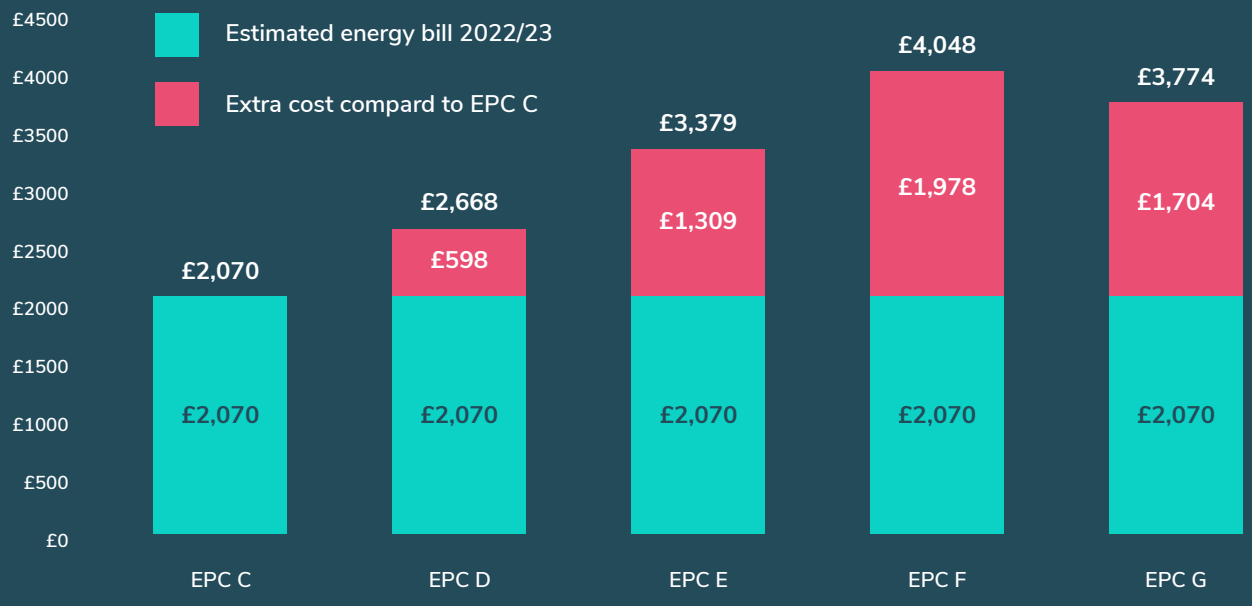
2022 reversed a decade of progress. April's price cap increase alone led to fuel poverty almost doubling from 13.2% at the end of 2021, to 22.7% just a few months later.

Rising energy prices are not an equal challenge across the UK's demographics. It punishes those in inefficient properties and with lower incomes more heavily, as they have to spend a higher proportion of their income on heating their home. As recent analysis from Cornwall Insight demonstrates, in a scenario where rising prices lead to somebody in an EER C home paying around £2,000 a year on their energy bills, a household in a grade F or G property will pay around twice as much (see figure 2).

As well as hitting those in inefficient homes hardest, the burden will also fall on society's poorest. Government data from 2020-2021 suggests that the median household income for a private rented household (£761 per week) is roughly double that of a household in the social sector (£393 per week). It is estimated that, since April 2022, single-adult households on low incomes will spend 54% of their income on gas and electricity. Lamentably, many of these households will be forced into impossible spending decisions between such necessities as heating or food for their families.

If EER C homes have to pay around £2,000 a year on their energy bills, a household in a grade F or G property will pay up to £4,048.

Fig 2: Tenants in inefficient properties are more at risk. Energy bills can double for those with a worse EPC rating



Source: Ofgem and Cornwall Insight, 2022

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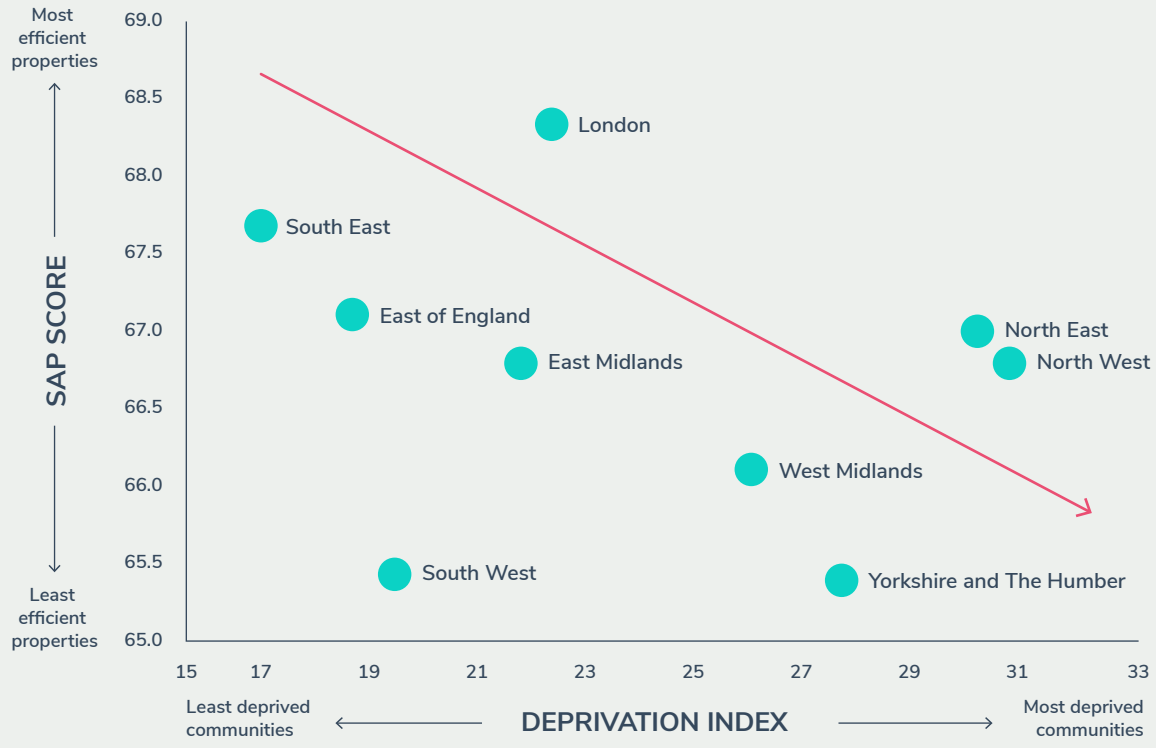
A regulatory bombshell

For housing providers, the cost of fuel changes the game in more ways than one: whilst the urgency and importance of supporting tenants increases, so too does regulatory pressure.

The government's headline target for the social sector is for "social landlords to ensure a significant proportion of residential properties are EER C by 2035". This is a stark contrast to the more punitive Minimum Energy Efficiency Standard changes that it has proposed for the PRS where all homes are to achieve a minimum of C within an accelerated timescale. There is an additional target, however, for as many fuel poor households as possible to achieve grade C by 2030. Changes to the cost of heating a home will force many more into this definition, creating a far more challenging target for housing providers who now have five fewer years to deliver the changes required. This target also adds additional complexity: identifying tenants at risk of fuel poverty is another data challenge that is not easily solvable.

The government's target of as many fuel poor households achieving EER C by 2030 will impact a large proportion of the social housing sector.

Fig 3: No "levelling up" when it comes to home insulation: many of the most deprived regions also suffer some of the worst levels of energy efficiency



Source: Kamma analysis of the EPC register, DLUC

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Data not delivering

With challenges to support tenants, cut emissions and achieve regulatory targets, housing providers are under more pressure than ever before.

An effective response must employ three critical components:

- The right strategy
- The right amount of funding
- The right data

The sector has proven it can deploy limited resources to good effect, driving down fuel poverty in the last decade. This does not mean perfect performance from every provider across every property, but it does highlight a level of efficacy that, through knowledge sharing and the continual evolution of best practice, could deliver against the substantial challenges.

The £3.8 billion Social Housing Decarbonisation Fund is expected to deliver £800 million in improvements in the next 12 months, adding substantially to provider budgets. Yet both good strategy and successful funding bids are contingent on the third component: the right data. Warmer homes, cheaper bills, and a smaller carbon footprint for years to come are all achievable with good data, yet these outcomes are restricted by the many failings of the EPC register.

Whilst the EPC register is open source, and includes data for some 13 million properties, almost the same number of properties are missing from it, and what data it does store is produced by a methodology that is 10 years out of date. Everything from the price of double glazing to the expected fuel saving from solar panels is based on data that is over a decade old, accounting for none of the changes in the market, or the recent spike in the cost of energy. This leads to over-reporting price and under-reporting impact. One silver lining to the energy crisis is that it dramatically shortens the payback period for green home improvements, particularly the more cost-effective fabric-first measures. By deploying data that is 10 years out of date, the EPC register delivers a much weaker business case for investment and improvements.

Changes in the price of fuel mean EPC energy savings estimates are woefully inaccurate

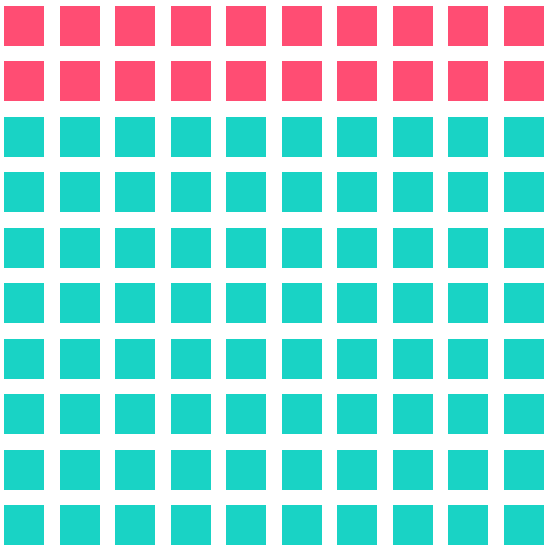
Improvement	Cost estimates - EPC register (midpoint)	Cost estimate (Kamma)	Energy savings (EPC register)	Energy savings (Kamma)	Cost estimate difference
Low energy lighting	£19.39	£16	£21	£43	£22
Cavity wall insulation	£1,465	£945	£20	£87	£67
Floor insulation	£5,000	£3,755	£50	£86	£36
Low-E double glazed windows	£6,500	£2,560	£23	£43	£20

Source: EPC register, Kamma sample analysis

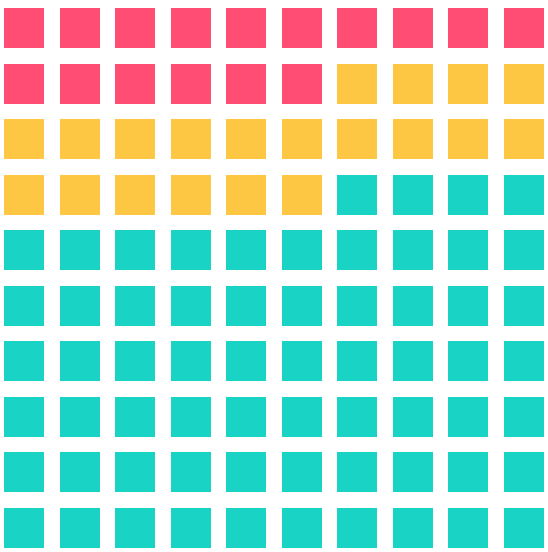
The industry is further held back by an inability to resolve addresses across datasets. An address listed as flat 1 on the EPC register, may be listed as flat A, or upper floor flat on a portfolio database, making it hard to align the respective data points. An industry standard address resolver would match around 80%, missing data for one in every five properties. This becomes more challenging then when multiple sources are matched. If a provider wants to overlay their portfolio with both EPC data, and the government's deprivation index*, and matches both to an 80% level, it can expect to have complete information for only 64% of properties.

Figure 4: Degradation of property data coverage as more sources are integrated with a portfolio

80% match rate for one third party data source: data missing for 20% of properties



80% match rate on second third party data source: data missing for 36% of properties



Case study: deploying machine learning to improve SHDF bids

Individually, each of these data challenges makes it harder for housing providers to deliver the best possible service for their tenants. Collectively, they make it impossible to build the rich data profiles required at a property level to deliver optimal retrofit strategies, or write compelling funding bids.

At Kamma, we filter the portfolio down to properties that are currently rated below an EER C and are therefore eligible for consideration. The guidelines recommend that fabric first improvements attain a space heating demand of 90kWh/M2 before non-fabric measures are funded, where the fabric improvements represent "good value for money".

By using the current modelled space heating demand on the EPC register as a starting point we can estimate the reduction in demand that would result from specific fabric measures being installed, and indicate which and how many fabric improvements are required to hit the threshold. Most importantly, we can indicate how much they would cost in total in order to justify value for money.

Pricing of all measures is based on the type and size of property and will incorporate up to date regional costs that come directly from the retrofit construction industry, not the EPC's 2012 database. We will estimate the division in total retrofit cost between SHDF funding and self-funding

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Better data, more funding, greater impact

The Social Housing Decarbonisation Fund requires a fabric-first approach for bids to be considered, delivering value for money in terms of both emissions and fuel saving.

Access to this funding pot also means accurately assessing property portfolios. Resolving the data issues previously described allows providers to identify under-performing properties, prioritise the most impactful improvements, and accurately estimate costs.

The key to unlocking funds and delivering this impact is data. This means going beyond basic EPC outputs, to leverage the thousands of other data points that, collectively harnessed, can correct, calibrate, and more accurately profile the true energy efficiency and environmental impact of a property. This rich source of data supports more accurate bids and, crucially, successful execution.

Advances in machine learning technology have improved address resolution to a 95% level, allowing housing providers to rapidly build richer profiles of properties at scale by combining multiple sources of data. Targeting the most at need properties with the most cost effective solutions is more easily achievable than ever before. If the issues of data poverty are solved, Housing Providers can precisely target, and then combat the root causes of fuel poverty.

Kamma has created the UK's most accurate and up-to-date dataset on the energy efficiency and environmental impact of property, containing 36 million profiles.

About Kamma

Kamma is building the single source of truth for environmental data relating to UK property. We've mined and modelled hundreds of information sources to give the most complete and accurate view of the environmental impact of the built environment.

We combine this with world-class address matching and insightful analysis that supports businesses through the challenges and opportunities of Property Zero. We equip property-related businesses for the fight against climate change, delivering a pathway to net zero, navigating new and emerging risks, enhancing regulatory compliance, and identifying green growth opportunities.

Kamma's unique and proprietary climate analysis and scoring methodology enables our clients to understand and benchmark immediate risks and opportunities arising as a result of climate change while also informing on future net carbon zero strategies.

Find out more

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Contact us now to find out more about how Kamma can support your business to de-risk, manage and securitise property-related assets

Get in touch

How can Kamma help

Kamma works with mortgage lenders, letting agents, local authorities, property funds and housing associations, supporting their drive to Property Zero. We combine world-leading data collection and address-matching with insightful analysis to articulate the fastest and most cost-effective route to carbon neutrality. We ensure regulatory compliance, manage risk, identify green growth opportunities and qualify green assets.

Visit the site at
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