

Annex 1: Housing Revenue Account Housing Retrofit Action Plan
DRAFT: June 2022**1. Context**

In December 2019, Executive approved the recommendations of a report that sought to both begin retrofit works and to undertake strategic planning to embed carbon neutrality into housing asset management as well as considering our role in supporting retrofit works across all tenures. This draft focuses on council-owned Housing Revenue Account stock for the 14 July Decision Session of the Executive Member for Housing and Safer Neighbourhoods. The final Action Plan will be fully cross-tenure.

Since this report significant progress has been made. The council has successfully attracted grant funding under the Social Housing Decarbonisation Fund and LAD 1, 2 and 3 programmes for energy upgrades to several hundred properties across all tenures. This approach has brought millions of pounds into the authority to support retrofit works on council homes as well as for low income families in the private rented and homeowner sectors. We have also developed a small team leading on this delivery work. Grant funding has been crucial in supporting this ambition but it is clear that if we are to make a significant impact on carbon emissions in the residential sector that we need to have a clarity of approach and ambition. As such, alongside this work we have been developing a Retrofit Action Pan. This strategy will link with the Carbon Reduction, Economic and Skills strategies which are all under development and provide a coherent and wider city level approach which touches upon all areas.

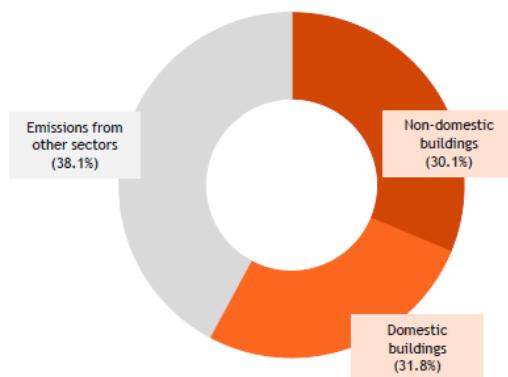
2. Introduction and key priorities

In 2019 City of York Council formally recognised the Climate Emergency and set the ambition for York to be a net-zero carbon city by 2030¹.

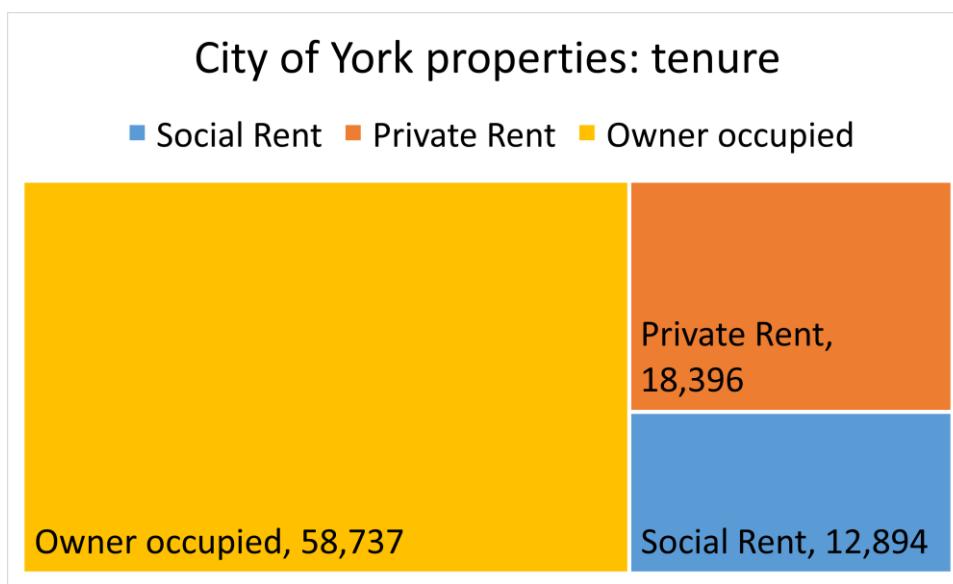
Domestic buildings are the single largest carbon producing sector locally, accounting for an estimated 31.8% of locally derived emissions.

¹ <https://www.york.gov.uk/ClimateChange>

Figure 5.1.1: SCATTER 2018 inventory for the buildings sector in the City of York.



The Retrofit Action Plan will cover all tenures, with strategies needed for decarbonisation of council, Registered Provider, owner occupied and Private Rented Sector stock. The distribution of the estimated 90,587 properties within the council area is shown below.

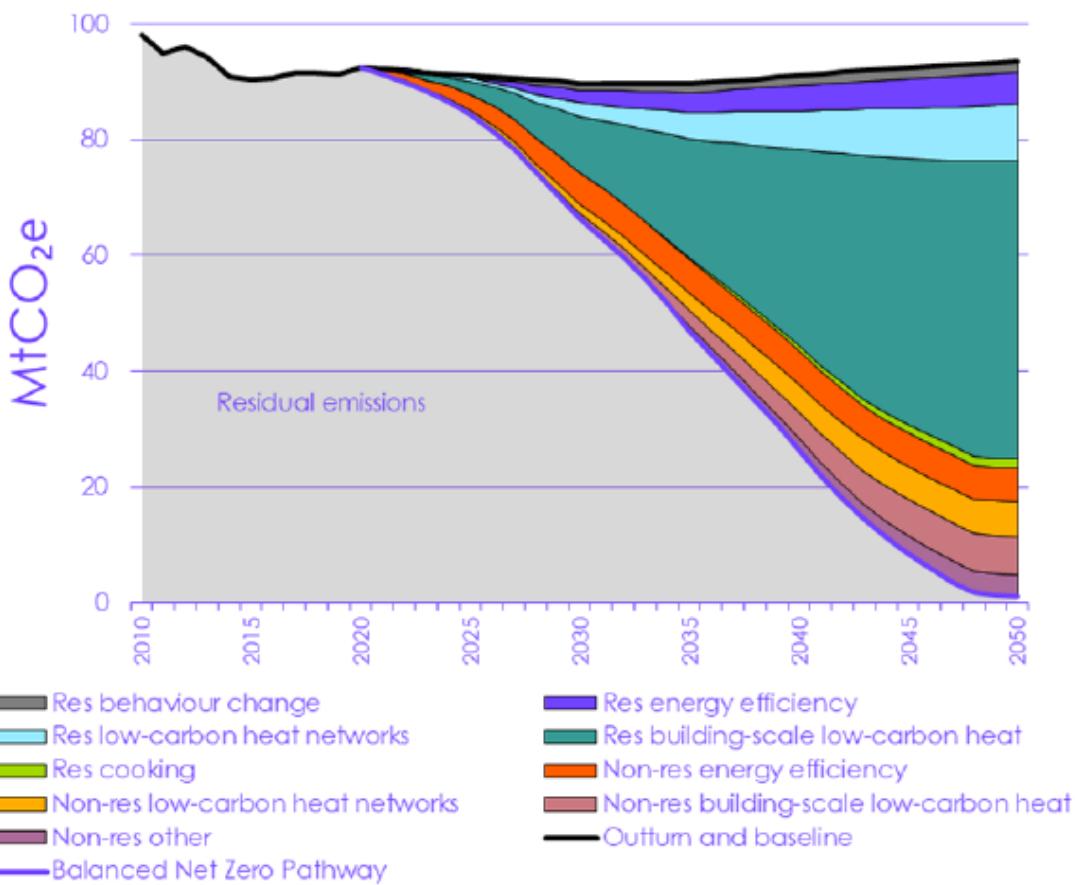


Source: MHCLG data

Domestic buildings are amongst the most significant contributors to emission reductions pathways, as shown in the Climate Change Committee's "*Sixth Carbon Budget; The UK's Path to Net Zero*"² below. It should be noted that the council's ambitions are for a more rapid decarbonisation route than the UK, but the figure illustrates the scale of residential energy use reductions needed.

² <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

Figure 3.2.a Sources of abatement in the Balanced Net Zero Pathway for Buildings



Source: BEIS (2020) Provisional UK greenhouse gas statistics 2019; Element Energy for the CCC (2020) Development of trajectories for residential heat decarbonisation to inform the sixth carbon budget; CCC analysis.

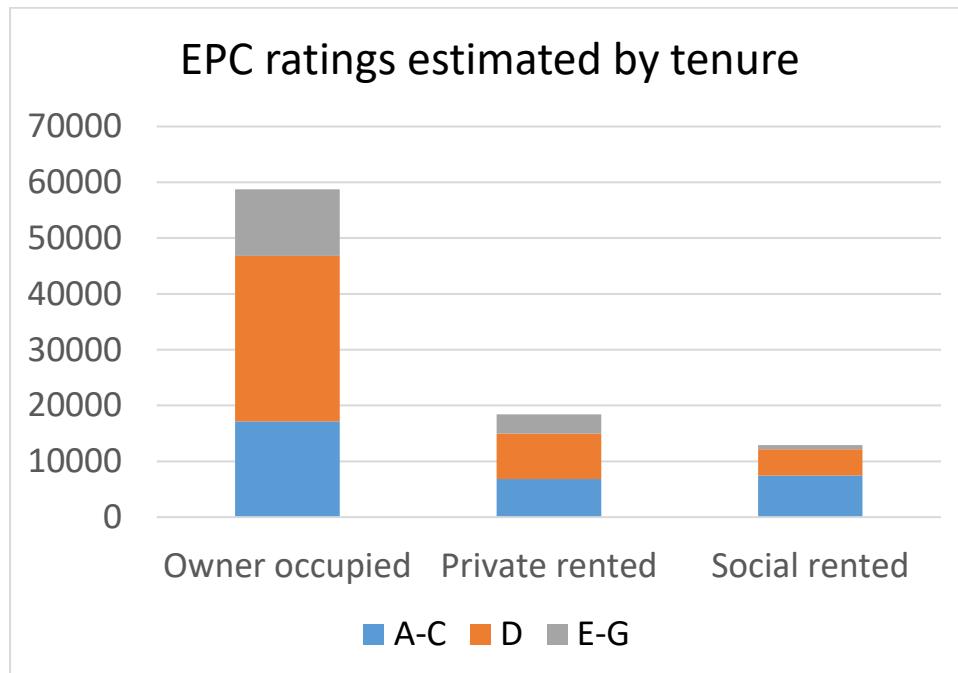
Notes: Residential low-carbon heating includes some efficiency associated with new homes. Non-residential energy efficiency also includes some behavioural measures. Non-residential other includes catering and other non-heat fossil fuel uses.

Note on data and mapping:

A cross-tenure energy modelling and mapping product is being provided by sector leaders Building Research Establishment Ltd (BRE), which will provide high quality dwelling-level estimates of the local housing stock. This will replace the estimates and mapping below derived from lodged EPC surveys across the City.

Analysis of EPC data highlights the extent of the challenge across all sectors. The government have established EPC C rating as the intended acceptable level through the mid-2020s, for example through the terms of grant applications and through minimum energy efficiency requirements coming into the private

rented sector market in future years. As the figure below demonstrates, many homes within York are outside of an A-C rating.



Source: MHCLG data and Open Communities EPC records

2.1 Why retrofit?

The overwhelming majority of domestic carbon emissions are produced by currently existing properties with a pathway to reducing this to net zero in coming years through improved fabric energy efficiency and low carbon heating solutions such as heat pumps. Furthermore with households facing unprecedented increases in energy bills in excess of 70%³ from April 2021 to April 2022, improving energy efficiency is essential to protect the health and wellbeing of lower income residents who are now disproportionately in fuel poverty. Even prior to the bill rises, the King's Fund concluded that "Every £1 spent on improving warmth in homes occupied by 'vulnerable' households can result in £4 of health benefits"⁴

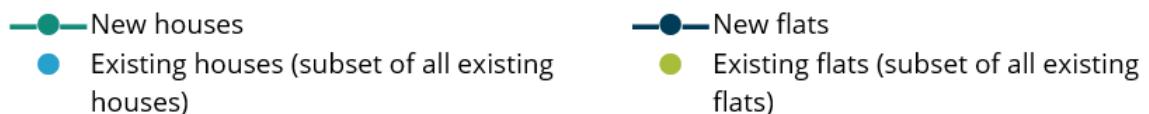
The Office for National Statistics (ONS) highlights the potential benefits of improving existing stock energy performance, shown on the following two pages. It is important that the quality of new build properties are driven up as it is most feasible to do this at the construction stage, however new build development will typically fall within a bound of 0.5%-1.5% of total stock.

³ <https://www.ofgem.gov.uk/publications/price-cap-increase-ps693-april>

⁴ p4 of report available at <https://www.kingsfund.org.uk/blog/2020/09/poor-housing-covid-19>

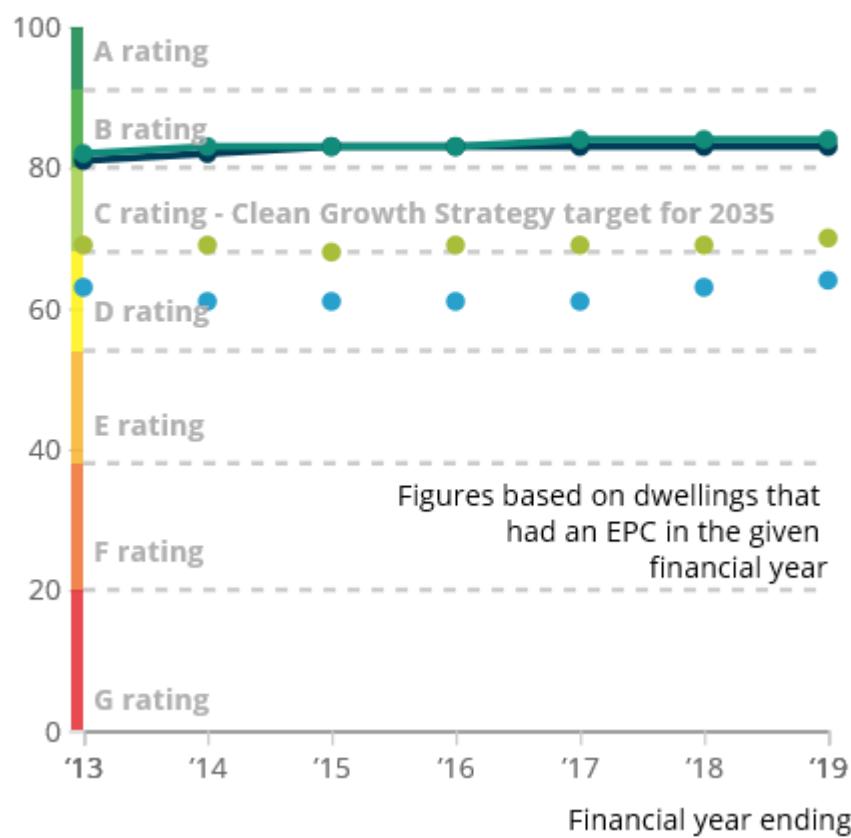
While this fluctuates dependent on market conditions and land availability, the urgent need to improve energy performance of existing homes is clear.

Median energy efficiency scores for new and existing flats and houses, financial year ending 2013 to financial year ending 2019⁵



England

Median energy efficiency score



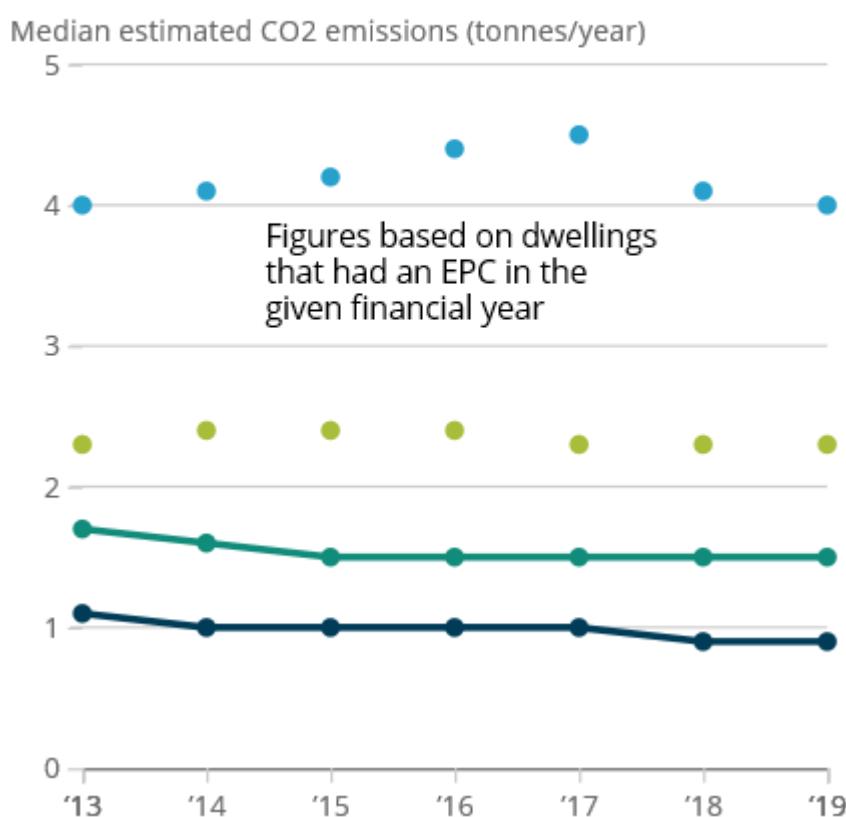
⁵

<https://www.ons.gov.uk/peoplepopulationandcommunity/housing/articles/energyefficiencyofhousinginenglandandwales/2020-09-23#energy-efficiency-of-new-and-existing-dwellings>

Median estimated Carbon Dioxide (CO₂) emissions (tonnes/year) for new and existing flats and houses, financial year ending 2013 to financial year ending 2019

- New houses
- Existing houses (subset of all existing houses)
- New flats
- Existing flats (subset of all existing flats)

England



2.2 Energy price rises 2021-22

The economic and social welfare value of energy saving work is particularly heightened by the current context of escalating energy costs, driven by rises in the wholesale price of natural gas. From April 2021 to April 2022 the price cap rise has brought typical bills⁶ from £1,138 to £1,971 (direct debit payments) and £1,156 to £2,017 (prepayment): an extraordinary rise of over 70%. Measures to reduce domestic energy use can benefit residents greatly in this context, with the New Economics Foundation estimating that the lowest income households may lose 5-10% of income due to the current inflation

⁶ <https://www.ofgem.gov.uk/publications/energy-price-cap-increase-april-consumers-should-switch-save-money>
<https://www.ofgem.gov.uk/publications/price-cap-increase-ps693-april>

levels – significantly more than other households, and potentially pushing residents who may have been struggling already into crisis⁷.

With energy bills constituting a substantial driver in the level of inflation, well-targeted retrofit measures across all tenures have the potential to significantly improve health and welfare for some of the City's most vulnerable residents.

2.3 How can retrofit achieve domestic decarbonisation?

Key elements of an effective approach to decarbonising homes are:

- Fabric improvements as part of a ‘pathway’ to domestic decarbonisation
- Use of energy efficient appliances, including switching from gas to electric
- Behaviour change

Replacement of gas boilers with electric heat pumps offering 250-400% efficiency⁸ is essential to decarbonise the housing stock. Fabric improvements reduce bills, increase comfort and support the electrification of home heating, facilitating efficient operation of heat pumps: this can be in individual properties and across district heating and ground or water source ‘shared loop’ heat networks⁹. On site energy generation (e.g. Solar PV) can also make an important contribution to achieving net zero, with new storage technologies providing further opportunities.

Where financial savings from retrofit can be predicted with confidence then models such as “comfort as a service” may become possible, with households billed at a fixed rate for a warm and comfortable home from a service provider or social landlord. This would replace billing by energy usage and incentivises the provider to deliver home efficiency improvements, while bringing in larger finance options such as institutional lending by providing a reliable return¹⁰.

The same principles can be applied across all tenures, and building the supply chain, enhancing local skills and increasing the number of high quality jobs in the sector are opportunities for the retrofit programme. However, the resourcing and delivery challenges are distinct between tenures. Development of energy efficiency knowledge and supply chain capacity is also an important

⁷ <https://neweconomics.org/2022/05/losing-the-inflation-race>

⁸ <https://www.gov.uk/government/publications/cost-optimal-domestic-electrification-code>

⁹ <https://heatthestreets.co.uk/shared-ground-loop-array/>

¹⁰ <https://www.greenfinanceinstitute.co.uk/wp-content/uploads/2020/06/Financing-energy-efficient-buildings-the-path-to-retrofit-at-scale.pdf>

area of interconnection between strategies for domestic and non-domestic buildings, with shared challenges and opportunities.

Key measures are summarised below – the fabric upgrades are all considered by the Climate Change Committee as part of its decarbonisation scenario modelling¹¹.

Fabric measures	Type of property suitable	Programme considerations
External or internal wall insulation	Solid brick, pre-1980s system build, “hard to treat” cavity wall homes	External wall insulation involves lower disruption levels for the occupant, however may face planning challenges due to aesthetic impact
Cavity wall insulation	Cavity wall homes: frequently 1920s onwards in York	Highly cost effective for suitable properties, around a quarter may still have uninsulated cavity walls ^{12 13}
Loft and roof insulation	All homes with a loft/roof	Another highly cost effective measure, with a large majority of lofts now insulated. Roof insulation such as form “room in roof” properties is more expensive and causes additional disruption to occupants, but with significant energy savings.
Draught proofing and air tightness improvement with associated ventilation	All homes although some types may see restricted ventilation options limiting potential extent of air tightness	Air infiltration is a complex source of heat loss which needs a property-specific response, sealing gaps while ensuring ventilation is adequate e.g. through installation of Mechanical Ventilation with Heat Recovery
Replacement doors and windows	Minority of homes would see benefit, may be heritage challenges	Over 90% of homes nationally now have double glazing, and a large proportion of the remainder are likely to be heritage properties where glazing upgrades are constrained, complex and/or expensive. However where possible benefit may be significant.

¹¹ <https://www.theccc.org.uk/publication/analysis-work-to-refine-fabric-energy-efficiency-assumptions-for-use-in-developing-the-sixth-carbon-budget-university-college-london/>

¹² <https://www.gov.uk/government/statistical-data-sets/energy-performance>

¹³

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/335152/Chapter_2_Hard_to_treat_properties.pdf

Heating option	Type of property suitable	Programme considerations
Individual property heating system upgrades	All homes subject to household costs consideration	Households with existing low efficiency gas or electric heater systems can benefit greatly from air source heat pump installation. Homes with modern combi boiler based systems will need more careful consideration because electricity is currently around 4x more expensive than gas per kWh.
Low carbon district heating such as “ambient loop” networks	All homes where infrastructure is provided on appropriate scale	<p>Opportunities for these to be explored within the City of York to deliver scale benefits from use of heat pump sources such as ground or river ambient warmth, and possibly thermal storage. Smaller networks of e.g. a single apartment block are also possible.</p> <p>Mixed use areas can offer additional benefit by reducing demand variability and peaks, or even by incorporating waste heat such as from IT equipment or supermarket freezers into the loop.</p>

2.4 Links to other strategies and policies

The central government strategy **Sustainable warmth: protecting vulnerable households in England**¹⁴ adds:

- The “worst first principle”, which is tackling the lowest energy performing properties first – improving EPC rated D and especially E/F/G properties to Band C
- A strong emphasis on fuel poverty, defined using the “Low Income Low Energy Efficiency” (LILEE) measure of households that:
 - Have a residual income below the poverty line (after accounting for required fuel costs) and
 - Live in a home that has an energy efficiency rating below Band C
- It may be noted that this measure is likely to significantly under-estimate the numbers of people facing hardship due to energy bills, which could now frequently be unaffordable in EPC C and above properties

¹⁴ <https://www.gov.uk/government/publications/sustainable-warmth-protecting-vulnerable-households-in-england>

These goals are important, and additionally are built into the government's funded programme design. However, as explored below, they can create additional challenges to decarbonising York's housing stock and in particular the private rented and owner occupation tenures.

Other linked strategies include:

- Council Plan
- Climate Change Strategy
- Local Plan climate change policies CC1 and CC2
- York Economic Development and Skills Strategy

2.5 Meeting the scale required: key challenges

Challenges highlighted below are explored further in tenure-based themes in this paper.

- Responding to the challenge by developing a team with the right knowledge and skills
- Supply chain and local skills development – there are opportunities within the council, in procurement and for working with local education providers
- Leveraging funding opportunities with indication that programmes such as the Social Housing Decarbonisation Fund are to be set on a longer-term footing by the government
- Embedding a whole-house retrofit pathway approach to EPC Band C and then a net-zero end point
- Understanding local stock profiles and setting out a path to net zero
- Partnership working for a sector that is 'more than the sum of its parts'
- Awareness raising, resident engagement and behaviour change
- Identifying 'fuel poor' households and targeting interventions
- Tackling the poorest performing Private Rented Sector (PRS) homes

2.6 PAS 2035

PAS 2035 is a national standard aiming to achieve uniformly high quality retrofit work and sponsored by the central government Department for Business, Energy and Industrial Strategy:

The standard drives the 'whole house approach' including the 'fabric first' methodology. It defines the qualifications and responsibilities of individual retrofit roles and respective activities required prior to and post EEM [Energy Efficiency

Measures] installation. It also includes a risk assessment process that builds incrementally robust requirements depending on what requirement path (A, B, or C) the retrofit project is assessed to fall within¹⁵.

The standard specifies a higher level of skills and a certified process to avoid issues that have been experienced in past retrofit work, such as defects, poor design, and a lower level of energy savings than expected (known as the ‘performance gap’). This introduces additional cost and complexity to projects in the short term, and is undergoing continuous review and improvement as further experience of the protocol is developed. However, it is a requirement of government funding programmes and it is proposed to utilize PAS 2035 in council retrofit works where practicable.

2.7 Fuel Poverty

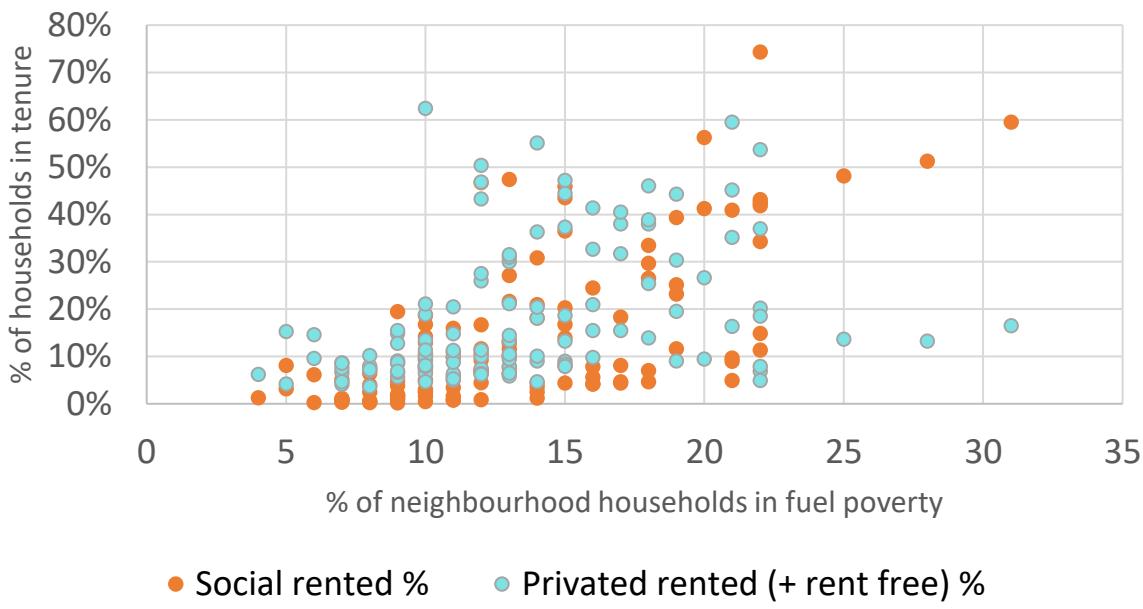
The tenure-specific context of fuel poverty in York is explored spatially in later sections. BEIS and other central government programmes are largely operated around eligibility criteria prioritizing households in fuel poverty, consequently this is an important factor in targeting delivery of programmes including Local Authority Delivery rounds 1b, 2 and 3 (LAD1b/2/3), Social Housing Decarbonisation Fund (SHDF) and the Energy Company Obligation (ECO).

Whilst fuel poverty exists across all tenures in York, the relatively high average incomes amongst home owners and private renters, and the needs-based social housing allocation policies create a distinctive pattern. It is also important to note that, as highlighted above, costs of home energy has become an urgent issue for many households outside the formal fuel poverty definition as prices rise over 2021-22.

Using Lower Super Output Area (LSOA) neighbourhood-level data shows that fuel poverty is significantly correlated with social rented tenure homes (over page):

¹⁵ <https://www.trustmark.org.uk/tradespeople/pas-2035>

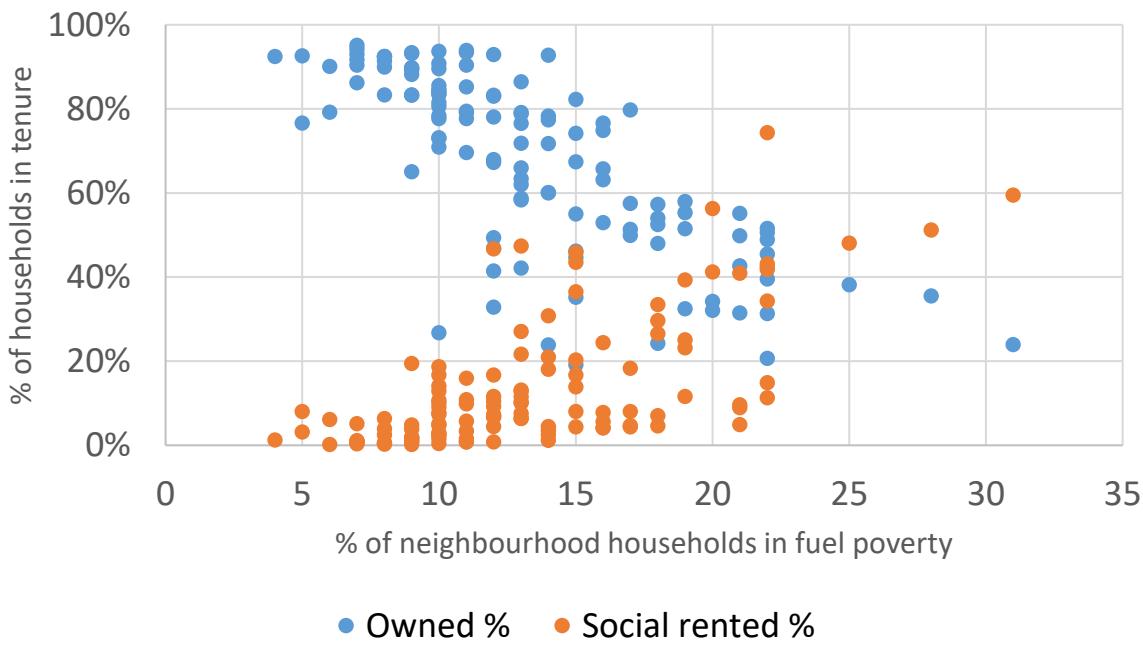
LSOA fuel poverty and tenure 1



Source: MHCLG, analysis of central government fuel poverty modelling

It is also negatively correlated with owner occupied home incidence:

LSOA fuel poverty and tenure 2



Source: MHCLG, analysis of central government fuel poverty modelling

2.8 Actions and future timescale

It is expected that the Retrofit Action Plan will be taken to an Executive Committee meeting during autumn 2022. This is anticipated to follow the adoption of the Climate Change Strategy later this year, which will set the overall pathway and inform the details and targets of the Retrofit Action Plan. It is intended that further detail on the pathways to net zero will be included, the document will also be maintained for updates to guide investment planning and strategic approaches in this fast moving sector. A summary of current actions is shown below.

Social rented sector

- SHDF and LAD2 programme delivery for over 70 properties across both the council's own stock and through a Registered Provider partner
- Preparation and project selection for the large SHDF Wave 2 programme with a delivery window of April 2023 to March 2025, likely including over 100 HRA properties in addition to partner Registered Providers
- Use of Parity Projects Portfolio energy modelling analytics to produce archetype specific plans for CYC homes and identify the range of works needed for the pathway from current level to EPC C and on to net zero carbon
- Identification of “business as usual” retrofit opportunities in planned capital works, voids and vulnerable tenant support
- Deployment of innovative building performance monitoring technologies to maximise benefit from all retrofit projects and understand “shared benefits payments” or “comfort as a service” bill savings potential
- The approach to new strategic delivery partner procurement will be established
- Ongoing skills programme for Building Services staff to build capacity
- Determine target for all properties to reach EPC C minimum as part of pathway to whole-stock net zero ambition by 2030
-

Private rented sector

- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Proactive engagement with landlords around current and future regulatory obligations, including work with partners towards a “one stop shop” energy advice centre service
- Explore regional loans opportunities with other partners engaged in the sector
- Incorporate PRS properties within HRA stock programmes where possible on a neighbourhood basis
- Explore procurement/direct labour opportunities to build consumer provider market through council programmes
- Set pathway to 2030 with annual EPC-based targets of homes to be improved where this aligns with government funding programmes and regulatory

expectations, and as part of decarbonisation plan to net zero using SAP-based modelling projections

Owner occupied sector

- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Explore innovative financing and services provision opportunities with other partners engaged in the sector
- Incorporate owner occupied properties within HRA stock programmes where possible on a neighbourhood basis
- Support community of residents motivated to improve the efficiency of their home despite challenges faced in a rapidly innovating, still maturing sector through development of advice and project management support services and work with local contractors who will be delivering the work
- Work with partners towards a “one stop shop” energy advice centre service which incorporates support for householder project management of retrofit improvement works
- Explore procurement/direct labour opportunities to build consumer provider market through council programmes
- Set pathway to 2030 with annual EPC-based targets of homes to be improved where this aligns with government funding programmes and regulatory expectations, and as part of decarbonisation plan to net zero using SAP-based modelling projections

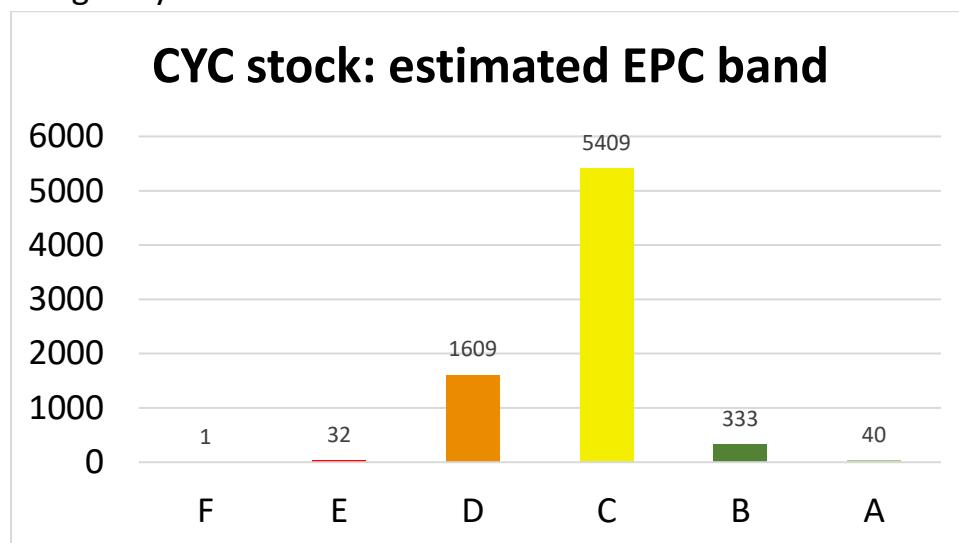
Cross-tenure responses

- Alongside the Economic Development team, extend existing links with local colleges in addition to other training providers to develop a retrofit skills pathway whether in Further Education or new decarbonisation competencies of existing suppliers and workers, also supporting apprenticeships and new market entrants
- Local Area Energy Planning exercise is already underway, this will inform spatial based responses including potential heat network options which can accelerate low carbon heating solutions

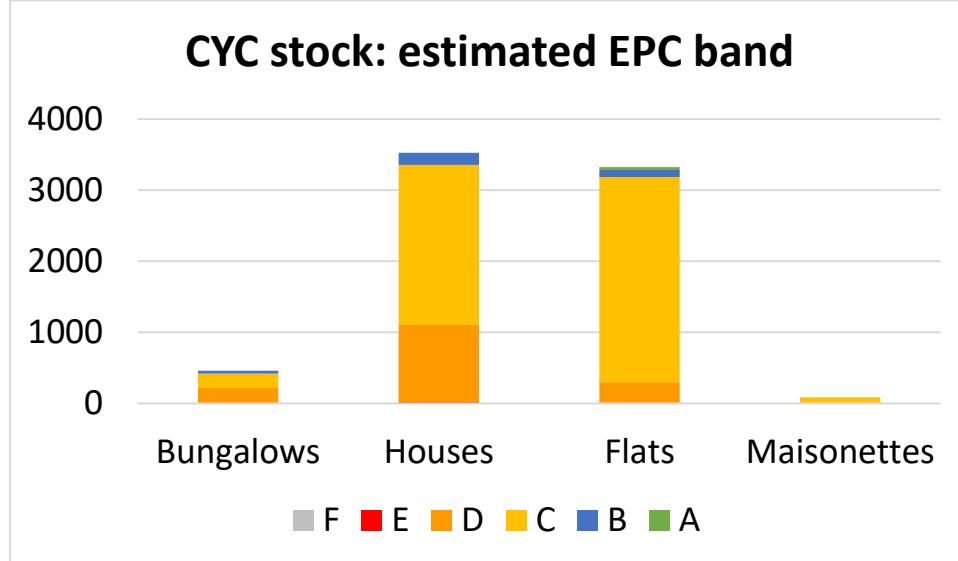
3. City of York Council Housing Revenue Account and Registered Provider Stock

EPC survey data shows that the council's HRA stock is better performing than the City's residential stock as a whole, due to higher quality maintenance standards and additionally a greater proportion of cavity wall properties, and apartments in the stock. Apartments benefit from high density conserving shared heat from neighbouring properties due to a lower ratio of external surface area to habitable space, reducing average heat loss.

Use of Parity Projects Portfolio industry-leading modelling provides an estimate of around 78% of HRA properties at C or above, however it is important to note modelling uncertainty with plausible estimates in the range of 65-75%, taking into account that more complex property types will tend to score lower and a high proportion of EPC C estimated homes have ratings marginally above the threshold.



Broad property types are shown below:



The council's 2019 HRA stock modelling exercise identified the following key archetypes as retrofit investment priorities (the relevant section from the report is contained in the Annex):

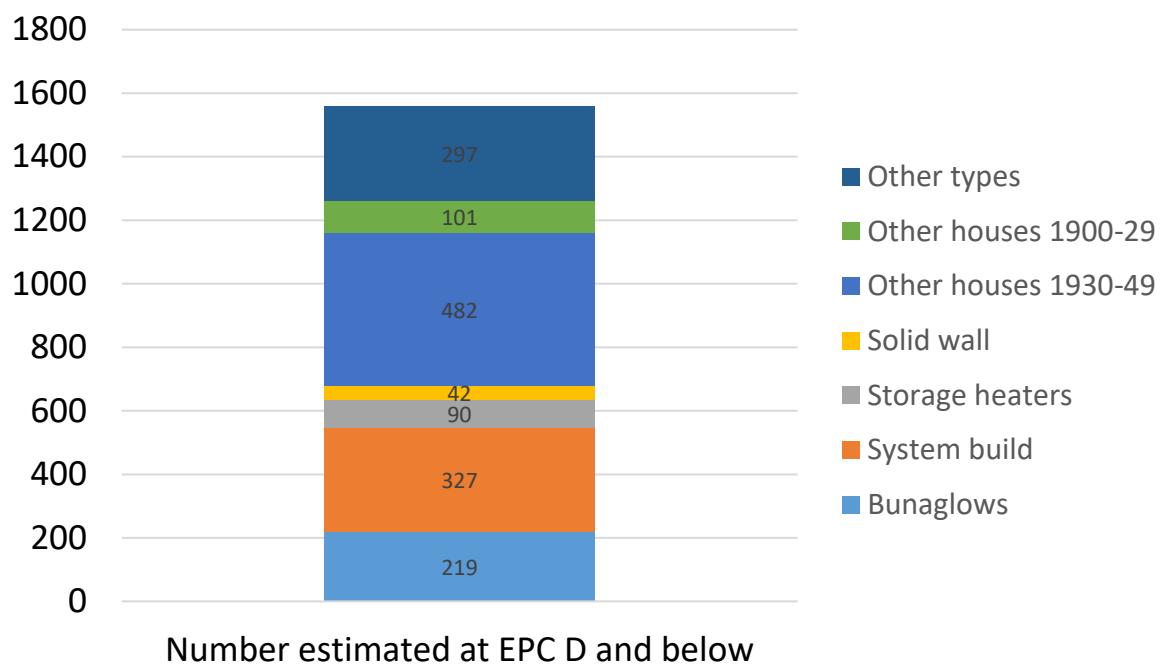
- Pre-1945 small terrace house, 522 properties
- All other pre-1945 houses, 937 properties
- Non-traditional houses, 577 properties
- Bungalows, 474 properties

These priority stock types constitute around 1/3 of the total HRA properties, but a large majority of the lowest energy efficiency performing homes. As explored below, properties across the social rented sector in York are more likely to have a good EPC rating than properties in other tenures.

It is important to note that blocks of flats are generally not exclusively rated D or below, where there are D banded properties this is generally with a mix of properties that are C or above – creating some additional challenges for delivery at speed and scale with funding targeted towards lower EPC rated properties.

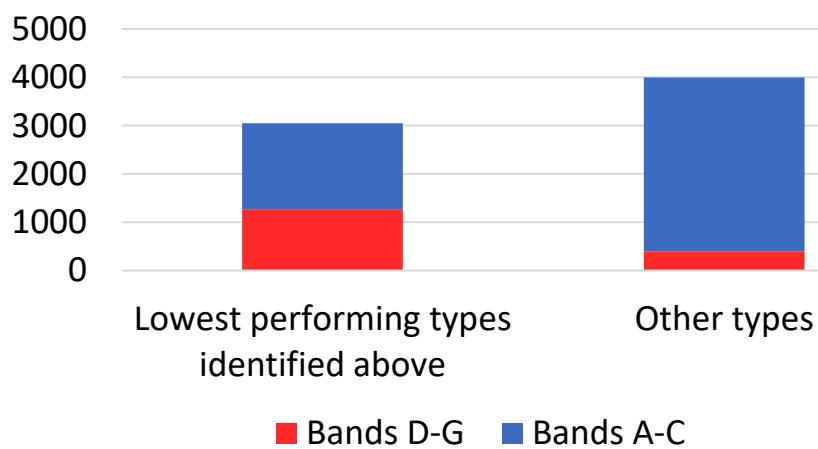
The concentration of lower performance within certain types is illustrated in the modelled data:

Modelled HRA types at EPC or below



A comparison of the types shown above with higher thermal performance types such as post-1950 traditional build houses and apartments highlights the potential for use of modelled data to prioritise typologies and areas for investment and funding bids.

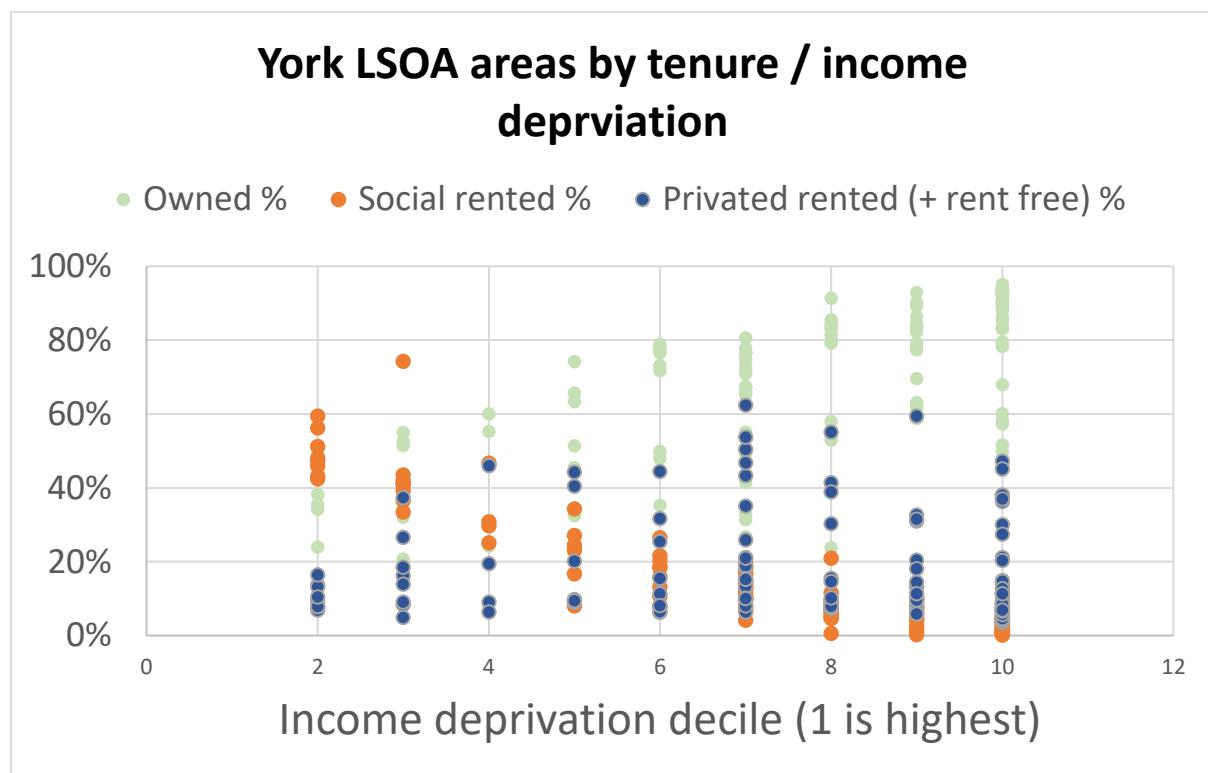
HRA modelled data



Futher review of the HRA stock data is ongoing, with potential for improvement in the accuracy of the modelled performance data for some more complex property types. Site surveys will be used to inform this where necessary.

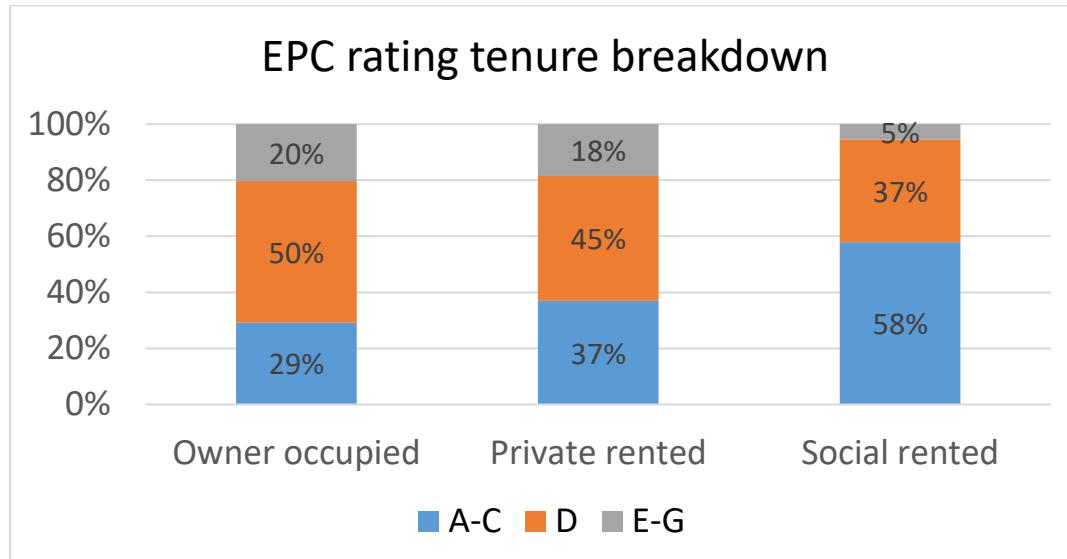
3.1 Tackling fuel poverty

A significant proportion of fuel poor residents in the City of York are social rented tenants, with the majority of social rented properties being HRA homes. In neighbouring cities where incomes are lower, fuel poverty may be widespread across all tenures, however in York low income residents are disproportionately likely to live in social rented homes. This is illustrated in the figure below showing strong correlation between neighbourhood income deprivation and social rented tenure properties at the Lower Super Output Area (LSOA) level:



Fuel poverty is also an important consideration for other tenures, as examined elsewhere in this paper. However, due to the essential role of social rented tenure in meeting the most urgent housing needs, the lowest income households are predominantly resident in this tenure. It is also important to note that a far lower proportion of EPC D and below rated properties are found in this sector, which itself reduces fuel poverty levels and enables more low income residents to live in homes with affordable energy bills.

[note: this will be updated and improved using BRE modelled data when available, due to methodological differences the social rented data is not directly comparison to HRA data shown above]

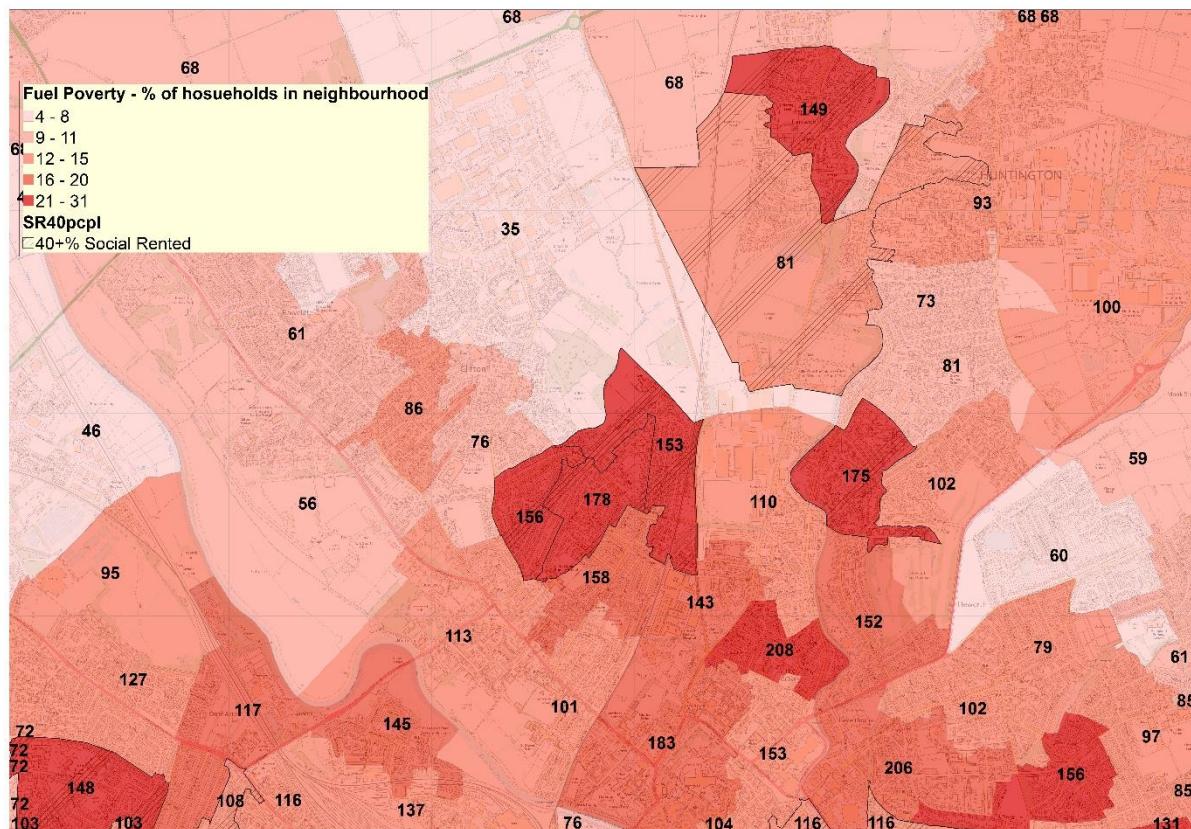


This is highlighted in a comparison of neighbourhood areas in York with high levels of fuel poverty identified in government statistics¹⁶. Fuel poor households are concentrated in areas of high social housing or student-oriented private rental tenure such as Acomb, Clifton, New Earswick and Tang Hall.

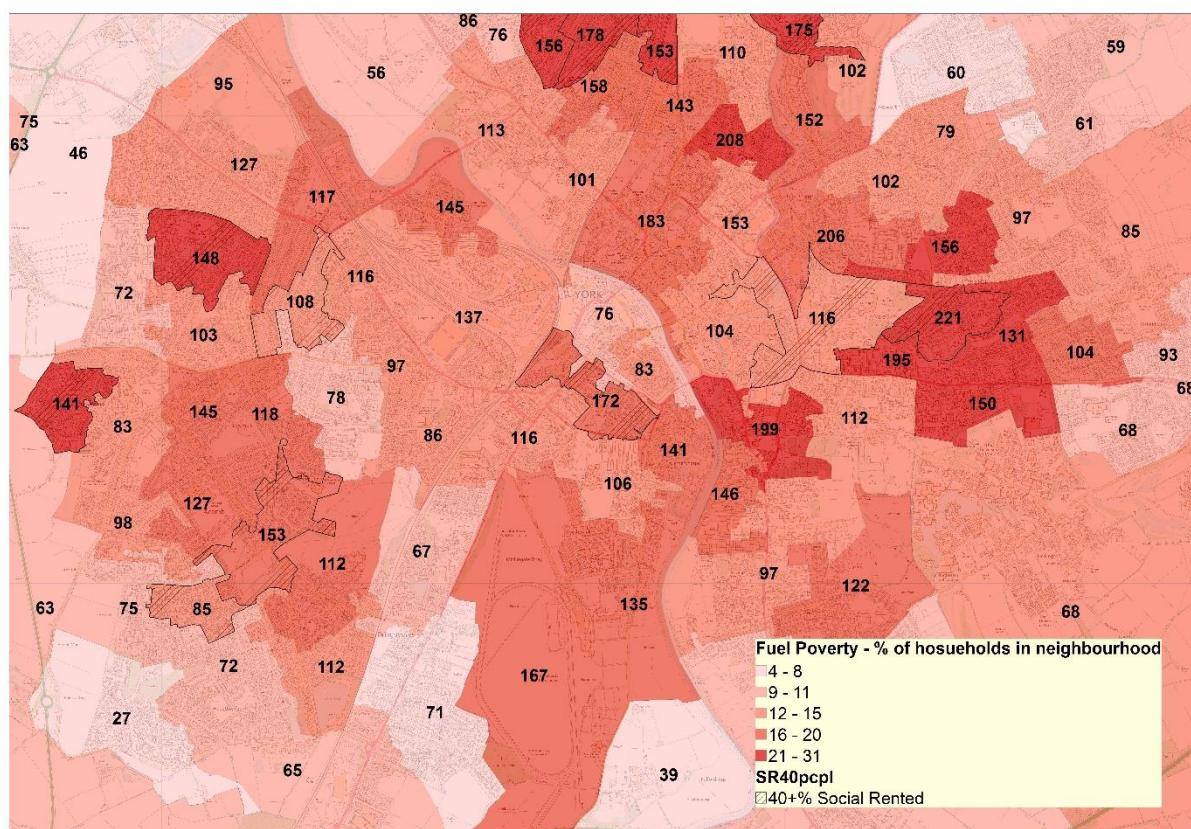
The numbers shown are the number of estimated fuel poor households in each neighbourhood area, the colour intensity indicates the proportion of the total properties this represents. Shaded and outlined areas have 40% of more social rented stock in total.

¹⁶ <https://www.gov.uk/government/collections/fuel-poverty-statistics>

Fuel poverty and social rented sector concentration map: North York



Fuel poverty and social rented sector concentration map: **South York**



3.2 HRA Investment Programme

Using an estimate of £5,000 per property, the cost to bring the approximately 2,000-2,750 HRA homes currently at EPC D-F up to a C rating, would be £10-13.75m at current cost. This takes into account the potential for match funding as well as savings from incorporating work into other capital programmes.

Potential greenhouse gas emissions savings from bringing these homes up to an EPC C rating are in excess of 1,500 tonnes of CO₂ equivalent annually. This could bring a combined total annual energy savings in the region of £712,500, at an estimated average of £300/year per home – much of which is likely to be spent in York's local economy.

EPC C is considered a key milestone on the pathway to net zero, with an estimated saving representing around 10-15% of the estimated emissions from HRA homes, depending on the set of measures carried out. But it is essential that works are designed with a decarbonised end point in mind beyond EPC C.

In July 2019, the Executive's Interim Budget established a £1m budget to kick-start a council retrofit programme of increasing the energy efficiency of our housing stock. The February 2020 Budget allocated a further £250k pa in the HRA capital budget for 20/21, 21/22, 22/23, 23/24 bringing the total budget for the Council Housing Energy Retrofit Programme to £2m.

To scale up the works and leverage the council's investments other routes could include:

- The primary route for investment is likely to be Band D properties eligible for 50% funding through the government's Social Housing Decarbonisation Fund programme, with a Wave 2 delivery window running from April 2023 to March 2025
- Use of service charges to generate a revenue stream via "comfort charge", sharing the benefits of energy bill savings with tenants
- Planned capital maintenance and voids works incorporated into "business as usual" energy upgrades, explored below
- Opportunities to increase the scale of retrofit improvements across the City by boosting supply chains through either procurement or direct delivery, with neighbourhood-based work across all tenures

3.3 Planned capital maintenance and other investment opportunities

The stock modelling report also identified significant opportunities to improve energy performance of HRA homes through integrating energy efficiency works with other ongoing maintenance and capital works. For example, 5-year boiler capital costs are estimated at £4.2m to 2026/27, with similar costs for future 5-year periods.

Capital investment items	5-year investment sum (to 2026/27)
Heating system	£4.2m
Kitchen/bathroom Tenants Choice	£10.4m
Standing water project	£3.9m
Roof replacements	£1.2m
Windows	£1.1m
Structural works	£0.96m
Total	£21.8m

Key energy efficiency enhancement opportunities in delivery of these works include:

- improvements to insulation, including potential combination of external wall insulation and/or solar PV with roof and/or window works
- draught proofing and increased air tightness when carrying out a wide range of works, provided that ventilation is assessed with an appropriate response as part of the measures
- installation of energy efficient heat pumps and building performance monitoring technology to optimise value of measures undertaken
 - This can include various forms of heat network, potentially reducing costs for residents by delivery of a larger, cross-tenure network, and by innovations such as use of waste heat from commercial sources and long-duration thermal storage
- resident engagement to raise awareness of potential individual and community benefits from other improvements to capital work processes building in energy efficiency enhancements to roofing, windows, flooring and upgrades to kitchens/bathrooms
- Supporting behavioural change

It may be possible to identify a minimum fabric standard that would be achieved in every void property let and other works carried out with measures

detailed for the more prevalent property types owned by the council, or targeted to priority property types.

3.4 National good practice examples: social housing

Leeds Council is currently replacing electric heating systems in council-owned apartment blocks with Ground Source Heat Pumps (GSHP)¹⁷, using a mix of HRA and central government funding sources. Similar approaches have been carried out in Sunderland¹⁸ and Adur and Worthing¹⁹. While there are no comparable large blocks in York to the Leeds and Sunderland schemes, GSHP or Air Source Heat Pumps (ASHP) may be incorporated into capital investment programmes in York's local context, with property-specific solutions identified.

Nottingham City Homes²⁰ and Sutton Council²¹ are delivering retrofit projects using the Energiesprong model. This uses components that are largely manufactured offsite and require less internal installation work. Consequently, the model is intended to avoid much of the disruption of other retrofitting methods. The capital costs of the works may be paid back over a number of years through a resident comfort plan, which functions as a service charge while guaranteeing lower bills than before the retrofit works as well as enhanced comfort and home health.

The Scottish Government has created a Fund managed by the Scottish Federation of Housing Associations to provide the following in response to the energy bill rises.²²

- specialist energy advice services
- financial support to allow tenants to clear debts and switch to a cheaper energy tariff
- fuel vouchers to allow tenants to top-up their prepayment meters

¹⁷ <https://news.leeds.gov.uk/news/thousands-of-leeds-tenants-to-enjoy-cheaper-energy-bills-as-council-appoints-contractor-to-deliver-gbp-24m-heating-upgrades>

¹⁸ <https://www.kensaheatpumps.com/social-housing/the-uks-largest-ground-source-heat-pump-gas-replacement-programme-in-tower-blocks/>

¹⁹ <https://www.adur-worthing.gov.uk/news/archive/pr21-155.html>

²⁰ <https://www.nottinghamcityhomes.org.uk/news/news/more-ultra-low-energy-homes-on-the-way/>
²¹ https://www.sutton.gov.uk/info/200670/environmental_sustainability/2291/sutton_s_zero_carbon_retrofit_pilot_project

²² <https://www.ssha.co.uk/news/news-category/ssha-news/news-article/housing-associations-support-tenants-struggling-with-energy-costs>

- energy efficiency measures such as radiator panels, draft excluders, thermal curtains, smart thermostats, energy-efficient lightbulbs, and carpets.

Fuel vouchers and some forms of financial support, in addition to the services offered by York Energy Advice are already available. Work is underway to investigate options for a rapid-response offer of the kinds of measures included in the Scottish programme, where tenants especially vulnerable to heating costs during 2022-23 are identified.

Social rented sector: key actions and targets

Action	Progress / notes
Retrofit works to 60 HRA phase 1 properties, informing the phase 2 programme	A minimum of 70 properties will be delivered by March 2023 through LAD2 and Social Housing Decarbonisation Fund Wave 1 – further to follow in Wave 2
Prepare Social Housing Decarbonisation Fund (SHDF) Wave 2 bid, including other Registered Provider partners in a consortium bid where possible	Significant £800m programme expected nationally, with minimum bids of 100 properties requested and delivery April 2023-March 2025. The 100 minimum can include consortium partners.
LAD2 programme delivery across both the council's own stock and through a Registered Provider partner	Installation of 45-50 Solar PV panels on CYC properties by Summer 2022 (included in retrofit phase 1 total figure)
"Rapid response" smaller efficiency measures programme for council tenants who are identified as vulnerable to high heating costs during 2022-23	Working group set up, reviewing budgets and options
Identification of planned capital works opportunities for example potential for heat pump installation, roofing, windows and other cyclical maintenance programmes	This will be incorporated into SHDF Wave 2 bid, and works during 2022 where possible
Procurement of strategic delivery partner during 2022-3	This will reflect the council's ambitions and learning from programmes to date, for delivery of

	SHDF Wave 2 if successful alongside other programmes
Ongoing skills programme for Building Services staff to build capacity	To date, 4 Building Services engineers have attended the BPEC Air and Ground Source Heat Pump Systems Training; Passivhaus tradesperson training also provided
Develop archetype specific plans for CYC homes to identify the range of works needed for the pathway from current level to EPC C and on to net zero carbon	Potential measures for archetypes have been identified, work with delivery partner on costs underway
Build existing relationships with Registered Providers to accelerate delivery, share skills and maximise benefits to tenants across the City	Registered Provider forum established with retrofit and decarbonisation a key topic, including attendance from asset managers
Determine target for all CYC properties to reach EPC C minimum as part of pathway to whole-stock net zero ambition by 2030	This will be informed by ongoing work and analysis

4. Strategy consultation

The strategy development process to date has been informed by discussion across the council and with key partners such as Registered Providers and energy efficiency social enterprises. In addition the Building Retrofit Roundtable event as part of the Climate Change Strategy has provided important insights.

The draft Housing Energy Efficiency Strategy briefing note to Scrutiny of October 2021 has been circulated to partners in the sector to organise further consultation with partners and residents. Responses have informed this draft document. Further consultation with partners, stakeholders and residents will be carried out through a variety of events over Summer 2022 with documents also made available on the council's web page for resident responses.

5. Housing energy efficiency summary: key actions and targets by tenure

The common themes and distinct tenure-specific actions are highlighted below.

Social rented sector

- SHDF and LAD2 programme delivery for over 70 properties across both the council's own stock and through a Registered Provider partner
- Preparation and project selection for the large SHDF Wave 2 programme with a delivery window of April 2023 to March 2025, likely including over 100 HRA properties in addition to partner Registered Providers
- Use of Parity Projects Portfolio energy modelling analytics to produce archetype specific plans for CYC homes and identify the range of works needed for the pathway from current level to EPC C and on to net zero carbon
- Identification of "business as usual" retrofit opportunities in planned capital works, voids and vulnerable tenant support
- Deployment of innovative building performance monitoring technologies to maximise benefit from all retrofit projects and understand "shared benefits payments" or "comfort as a service" bill savings potential
- The approach to new strategic delivery partner procurement will be established
- Ongoing skills programme for Building Services staff to build capacity
- Determine target for all properties to reach EPC C minimum as part of pathway to whole-stock net zero ambition by 2030

Private rented sector

- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Proactive engagement with landlords around current and future regulatory obligations, including work with partners towards a "one stop shop" energy advice centre service
- Explore regional loans opportunities with other partners engaged in the sector
- Incorporate PRS properties within HRA stock programmes where possible on a neighbourhood basis
- Explore procurement/direct labour opportunities to build consumer provider market through council programmes
- Set pathway to 2030 with annual EPC-based targets of homes to be improved where this aligns with government funding programmes and regulatory expectations, and as part of decarbonisation plan to net zero using SAP-based modelling projections

Owner occupied sector

- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Explore innovative financing and services provision opportunities with other partners engaged in the sector
- Incorporate owner occupied properties within HRA stock programmes where possible on a neighbourhood basis
- Support community of residents motivated to improve the efficiency of their home despite challenges faced in a rapidly innovating, still maturing sector through development of advice and project management support services and work with local contractors who will be delivering the work
- Work with partners towards a “one stop shop” energy advice centre service which incorporates support for householder project management of retrofit improvement works
- Explore procurement/direct labour opportunities to build consumer provider market through council programmes
- Set pathway to 2030 with annual EPC-based targets of homes to be improved where this aligns with government funding programmes and regulatory expectations, and as part of decarbonisation plan to net zero using SAP-based modelling projections

Cross-tenure responses

- Alongside the Economic Development team, extend existing links with local colleges in addition to other training providers to develop a retrofit skills pathway whether in Further Education or new decarbonisation competencies of existing suppliers and workers, also supporting apprenticeships and new market entrants
- Local Area Energy Planning exercise is already underway, this will inform spatial based responses including potential heat network options which can accelerate low carbon heating solutions

Annex: Stock Condition Survey Energy Profiling

8. Energy Profiling

As part of this survey MDA were asked to collect energy data to provide an accurate assessment of the average energy rating for the stock. MDA carried out RdSAP surveys to all properties where a stock condition survey was completed.

The SAP ratings appear consistent with our expectations, with the overall average SAP rating for the stock being 70.6.

CYC is required to submit annual regulatory statutory returns to 'Housemark', (an organisation designed to help the social housing sector to improve performance and improve value for money).

Currently, the reported average SAP at 'Housemark' rating for social landlords within the UK is 73.2. Therefore, the average noted in the table above is slightly below the 'Housemark' average.

MR A Ref	Archetype	Average SAP Value	Average CO2 Rate (tons)	Average Energy Usage (kWh)	Average Lighting Costs (£)	Average Space Heating Costs (£)	Average Water Heating Costs (£)
1	Pre 1945 small terrace houses (small: less than 70 square metres)	68.59	41.07	234.06	61.19	522.46	111.36
2	Pre 1945 semi-detached houses	69.48	39.66	225.66	60.11	524.15	109.72
3	All other pre 1945 houses	68.80	39.22	224.02	66.85	579.41	115.18
4	1945-64 small terrace	70.66	38.08	216.58	57.43	493.53	110.06
5	1945-64 large terrace/semi-detached/detached houses	71.17	36.31	206.60	67.98	542.07	114.41
6	1965-74 houses	69.52	40.51	230.39	59.43	501.13	102.85
7	Post 1974 houses	73.95	32.35	183.74	57.66	475.35	117.12
8	Non-traditional houses	68.69	39.30	224.09	70.43	585.16	114.45
9	Pre 1945 low rise (1-2 storeys) flats	70.10	44.33	253.24	36.63	357.99	90.21
10	Post 1945 low rise (1-2 storeys) flats	71.11	39.78	227.33	47.70	356.88	102.30
11	Medium rise (3-5 storeys) flats	72.84	37.69	214.81	44.87	333.91	95.96
13	Bungalows	67.61	46.59	266.29	45.37	486.12	95.39
Overall		70.61	39.41	224.82	54.00	444.73	104.86

Bungalows, Non-Traditional houses and the oldest (pre-1945) houses achieve the lowest SAP rating with 67.6, 68.6 and 68.8 respectively.

Post 1974 houses achieves the highest SAP rating with just 73.95.

It should be noted that the overall energy cost is £603.59 per year but this only accounts for heating and lighting costs. Domestic costs such as TVs, cookers, fridges etc are not accounted for in these figures.