City of York Council Retrofit Action Plan
December 2022

1.Context

This Action Plan covers energy efficiency improvements to existing homes to reduce carbon emissions and save residents' energy bill costs, which is referred to as retrofit.

In December 2019, Executive approved the recommendations of a report that sought to both begin energy efficiency retrofit works and to undertake strategic planning to embed decarbonisation into council housing asset management as well as considering our role in supporting retrofit works across all tenures. A draft focused on council-owned Housing Revenue Account stock was considered at the 14 July 2022 Decision Session of the Executive Member for Housing and Safer Neighbourhoods. This current Action Plan is now fully cross-tenure.

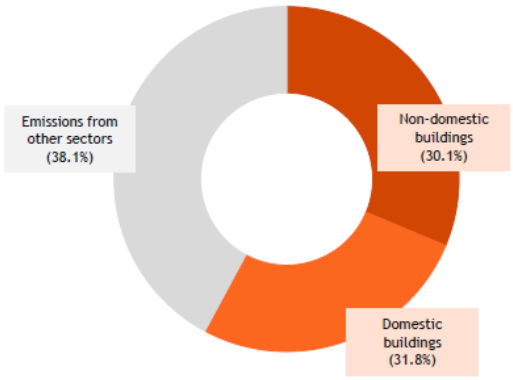
Since the initial report significant progress has been made. The council has successfully attracted grant funding under the Social Housing Decarbonisation Fund and LAD 1, 2 and 3 programmes for energy upgrades to several hundred properties across all tenures. This approach has brought millions of pounds into the city 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, we need to have a clarity of approach and ambition. As such, alongside this work we have developed this Retrofit Action Plan. This strategy will link with the approved Carbon Reduction, Economic and Skills strategies and provide a coherent and wider city level approach which touches upon all areas of domestic energy retrofit.

2. Retrofit Action Plan summary

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 2030[1].

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

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



The benefits of home energy upgrades – "retrofit"

As a result, reducing the carbon emissions from heating and running the approximately 90,000 homes in the City of York is key in addressing the climate emergency, as recognised in the Climate Change Strategy[2]. It is also essential to tackle fuel poverty in the current cost of living context with a doubling of energy bills from 2021 to winter 2022/23, and to improve residents' health and wellbeing across the City.

The financial savings can be significant. Had the estimated 55%-65% homes rated D or below in Energy Performance Certificates (EPCs) been improved to a basic EPC C standard before this winter, local energy bills could have been around £10m-15m lower, or a total of around £50m-100m over 10 years dependent on future energy costs. Similarly this could have offered a saving in the region of 15,000 tonnes CO2 equivalent greenhouse gas emissions, notwithstanding the limitations of the RdSAP/EPC methodology for achieving medium-term retrofit ambitions.

[1] https://www.york.gov.uk/ClimateChange

[2] https://www.york.gov.uk/ClimateChange10YearStrategy#:~:text=The%20York%20Climate%20Change%20Strategy%20will%20be%20a%20shared%20strategy,planting%20and%20sourcing%20renewable%20energy.

Retrofit challenges and solutions

The council is delivering significant government funded retrofit programmes, however scaling up to decarbonise homes of all tenures across the City is required, which can only be achieved with a partnership approach where community groups, suppliers, residents and the council are working together to deliver this important wellbeing and decarbonisation priority.

Challenges to tackle include skills in the sector, financial products to fund works, maximising delivery of government funded schemes and integrating energy efficiency investment in the council's own stock with other capital programmes such as kitchen and bathroom upgrade modernisation. There are significant opportunities for both 'fabric improvements' of insulation and airtightness, and low carbon renewables technologies such as heat pumps and rooftop Solar Photovoltaic (PV) panels.

In addition to direct economic benefits from as much as £1bn of retrofit work that could be carried out in the City over the next decade across homes in all tenures, residents would have additional spending power for the local economy due to energy bill savings.

Council plans and key actions

This document sets out plans for the council to leverage its strategic position as owner of around 7,500 homes to build a scaled up supply chain over the longer term, by accelerating retrofit delivery in its own stock and integrating with other improvement works in council homes as a long-term commitment from 2022/23 onwards. Alongside private tenure government programmes such as Local Authority Delivery (LAD 1B, 2, 3) and Energy Company Obligation 4 (ECO4) this can bring down fuel poverty levels and support local residents.

To maximise these opportunities, engage local communities and support residents who are able to pay for home energy upgrades but unsure about the next steps, an energy advice service is proposed offering assessments and advice across all tenures and income groups. Home retrofit and energy advice is identified as a key gap in the sector in a number of reports and this has also been highlighted in local stakeholder engagement. A high quality advice service is expected to build confidence in suppliers that these are important skills for investment, and to expand the market for innovative new financial products that expand the affordability of home energy retrofit improvements.

Key actions summary	Tenures addressed	Timescale
Identify resource to establish a cross-tenure **energy advice service** for all residents during 2022/23, combining support for residents facing fuel poverty with advice for "able to pay" residents in taking the first step	All tenures	2022/23 onwards
Deliver improvements to bring a minimum of **70 council owned properties up to EPC C** standard by March 2023 through government LAD2 and Social Housing Decarbonisation Fund Wave 1 programmes	Council owned homes	2022/23
Set out plans for investment to raise **110-115 further council homes to achieve EPC C** standard during **2023-2025** as a bid for the Social Housing Decarbonisation Fund Wave 2	Council owned homes	2022-2025
Include retrofit improvements within the council housing **Asset Plan 2023-2028** to identify pathway for up to 3,000 properties to be improved to EPC C standard by 2030 as part of a pathway to full decarbonisation, ensuring all stock reaches this level as a minimum	Council owned homes	2022-2027
Deliver the current significant programme of **government funded retrofit work** for residents at risk of fuel poverty in home ownership and the private rented sector	Private tenures	2022-2025
Maximise delivery of future government programmes where feasible, and scale up **Energy Company Obligation (ECO4/ECO+)** programme in the City of York, subject to final details to be announced by the government and Regulator (Ofgem)	Private tenures	2023/24
Explore innovative financing and services provision opportunities with other partners engaged in the sector	All tenures	2022/23 onwards
Alongside the Economic Development team, extend existing links with local colleges and to other training providers to develop a **retrofit skills pathway** whether in Further Education or new decarbonisation competencies of the council, existing suppliers and workers, also supporting apprenticeships and market entrants	All tenures	2022/23 onwards

3. 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 2030[3].

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

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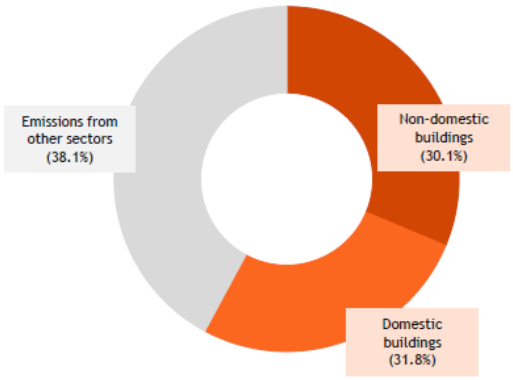
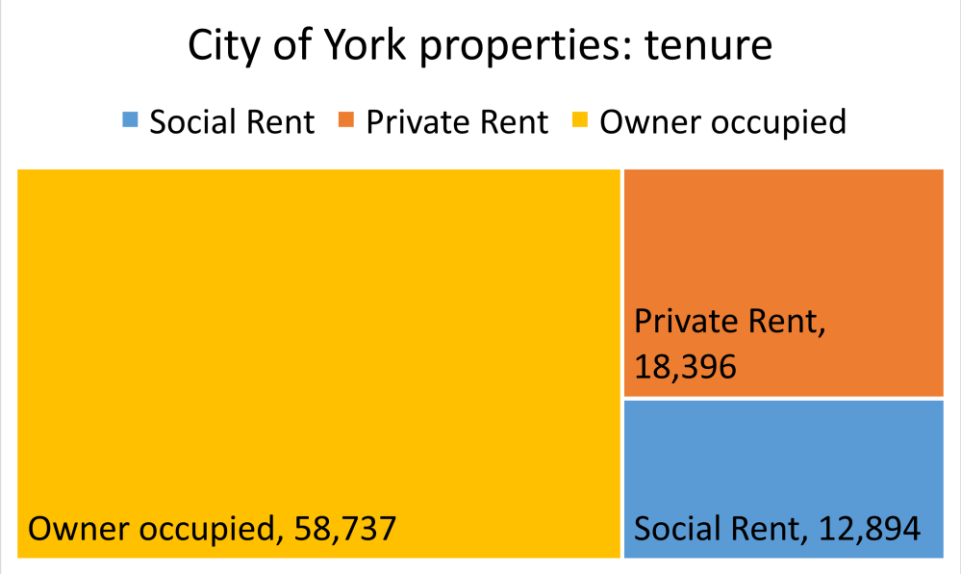


The Retrofit Action Plan covers all tenures, with strategic approaches for decarbonisation of council, Registered Provider, owner occupied and Private Rented Sector stock. The distribution of the estimated 90,587 properties within the council area is shown below.

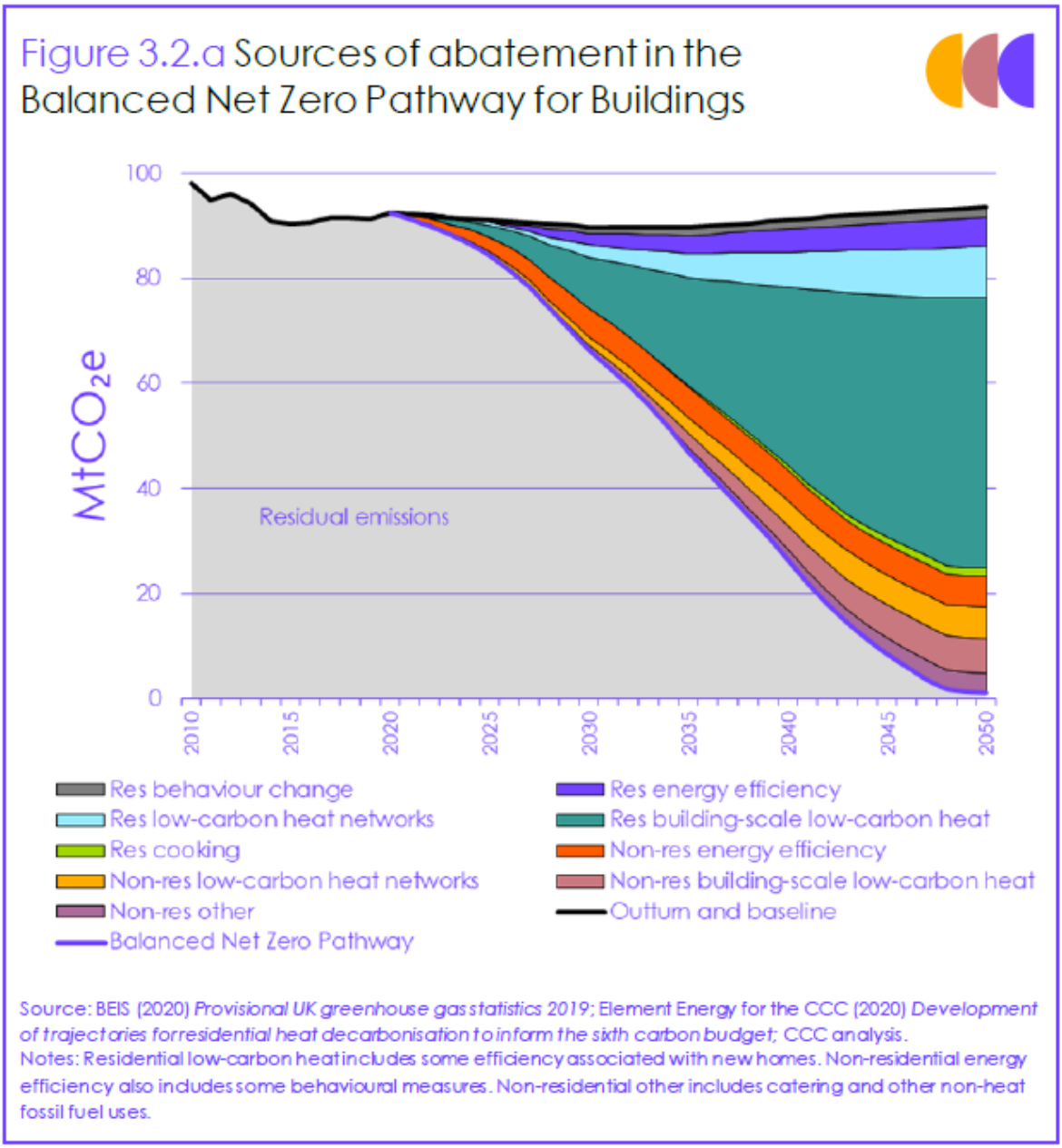


Source: MHCLG data

Domestic buildings are amongst the most significant sources of emission reductions in future pathways, as shown in the Climate Change Committee's

[3] https://www.york.gov.uk/ClimateChange

"*Sixth Carbon Budge; The UK's Path to Net Zero*"[4] 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.

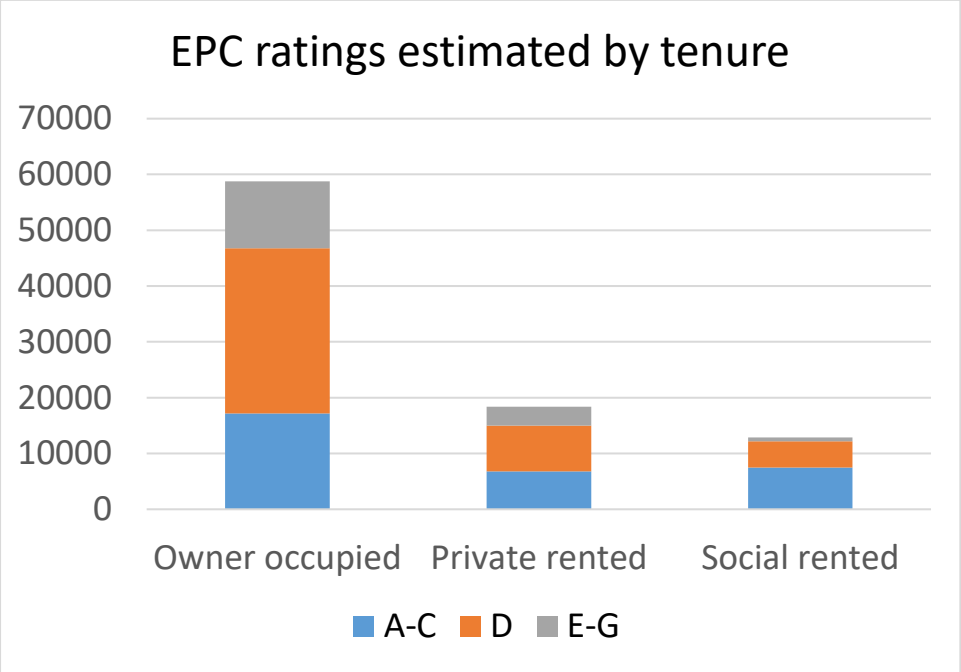


Source: BEIS (2020) *Provisional UK greenhouse gas statistics 2019*; Element Energy for the CCC (2020) *Development of trajectories for residential heat decarbonisation to inform the sixth carbon budget*; CCC analysis.
Notes: Residential low-carbon heat includes some efficiency associated with new homes. Non-residential energy efficiency also includes some behavioural measures. Non-residential other includes catering and other non-heat fossil fuel uses.

Analysis of Energy Performance Certificate (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.

[4] https://www.theccc.org.uk/publication/sixth-carbon-budget/

It may be noted that while the RdSAP methodology used for EPC has numerous recognised shortcomings[5], it is used as a starting point for much of the quantitative analysis in this document. The advantages are that it is a large dataset and provides a standardised measure with various fabric improvements recognised, and there is some justification in real world data on existing properties[6]. However it is also important to progress beyond RdSAP to deliver full decarbonisation programmes over the medium-to-long-term.



Source: MHCLG data and Open Communities EPC records

3.1 Why retrofit?

The overwhelming majority of domestic carbon emissions are produced by currently existing properties. There is 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 an unprecedented doubling of energy bills from April 2021 to October 2022, improving energy efficiency is essential to protect the health and wellbeing of lower income residents who are now disproportionately in fuel poverty.

Already prior to recent and unprecedented 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"[7] Cold homes were estimated to

[55] https://www.levittbernstein.co.uk/research-writing/making-sap-and-rdsap-11-fit-for-net-zero/
[6] https://www.gov.uk/government/statistics/national-energy-efficiency-data-framework-need-report-summary-of-analysis-2021
[7] p4 of report available at https://www.kingsfund.org.uk/blog/2020/09/poor-housing-covid-19

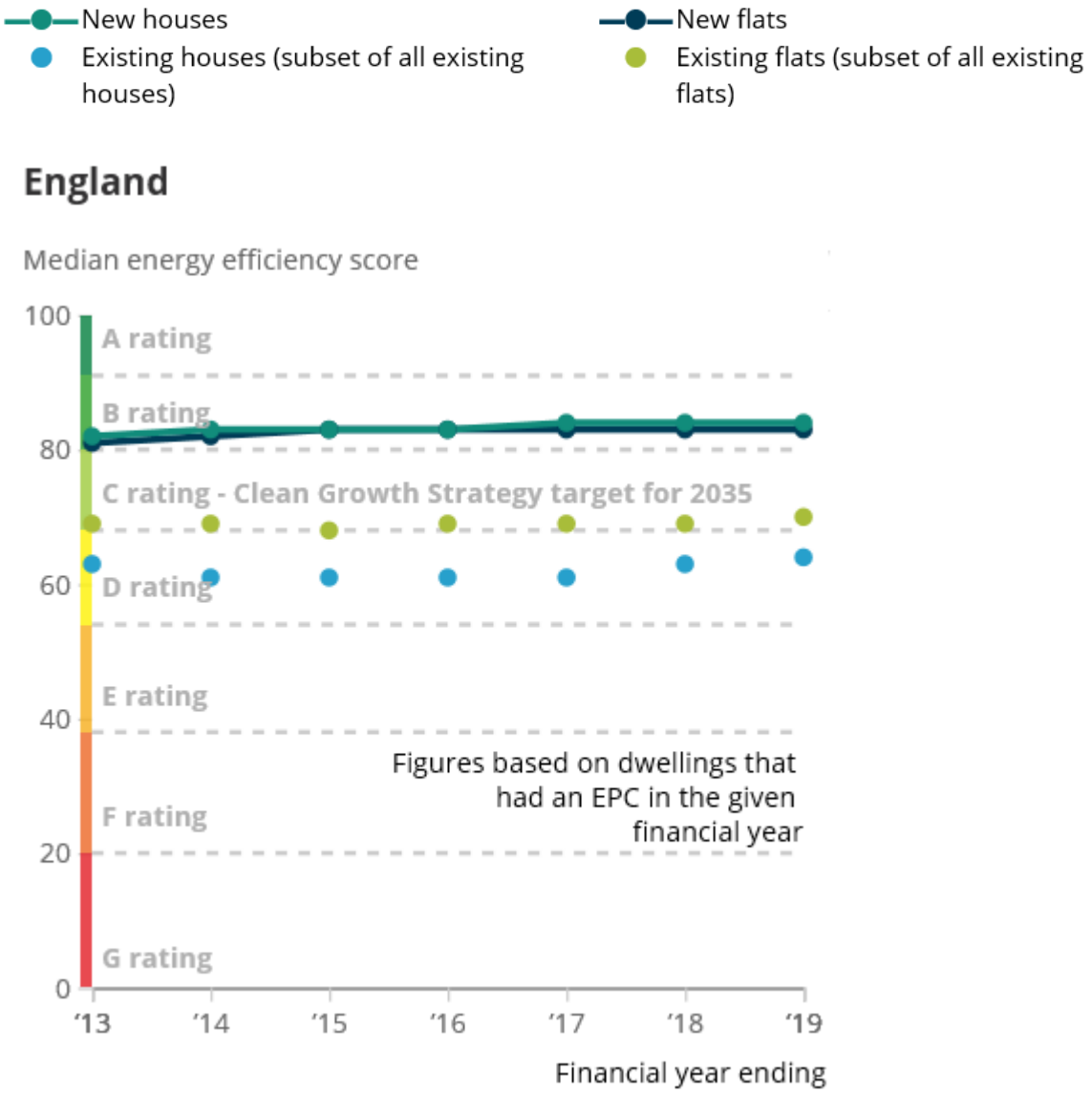
cost the NHS £2.5bn in 2019[8]. Further impacts include negatively affecting child educational achievement and welfare through exacerbating adult stress in the household; additional financial stress; while a cold home environment can exacerbate mental health conditions.

It is important that the quality of new build properties is driven up as it is most feasible to ensure desirable energy performance at the construction stage, however new build development will typically fall within a bound of 0.5%-1.5% of total stock. While this fluctuates dependent on market conditions and land availability, the urgent need to improve energy performance of existing homes is clear.

The Office for National Statistics (ONS) highlights the potential benefits of improving existing stock energy performance. The details of this are shown on the following two pages.

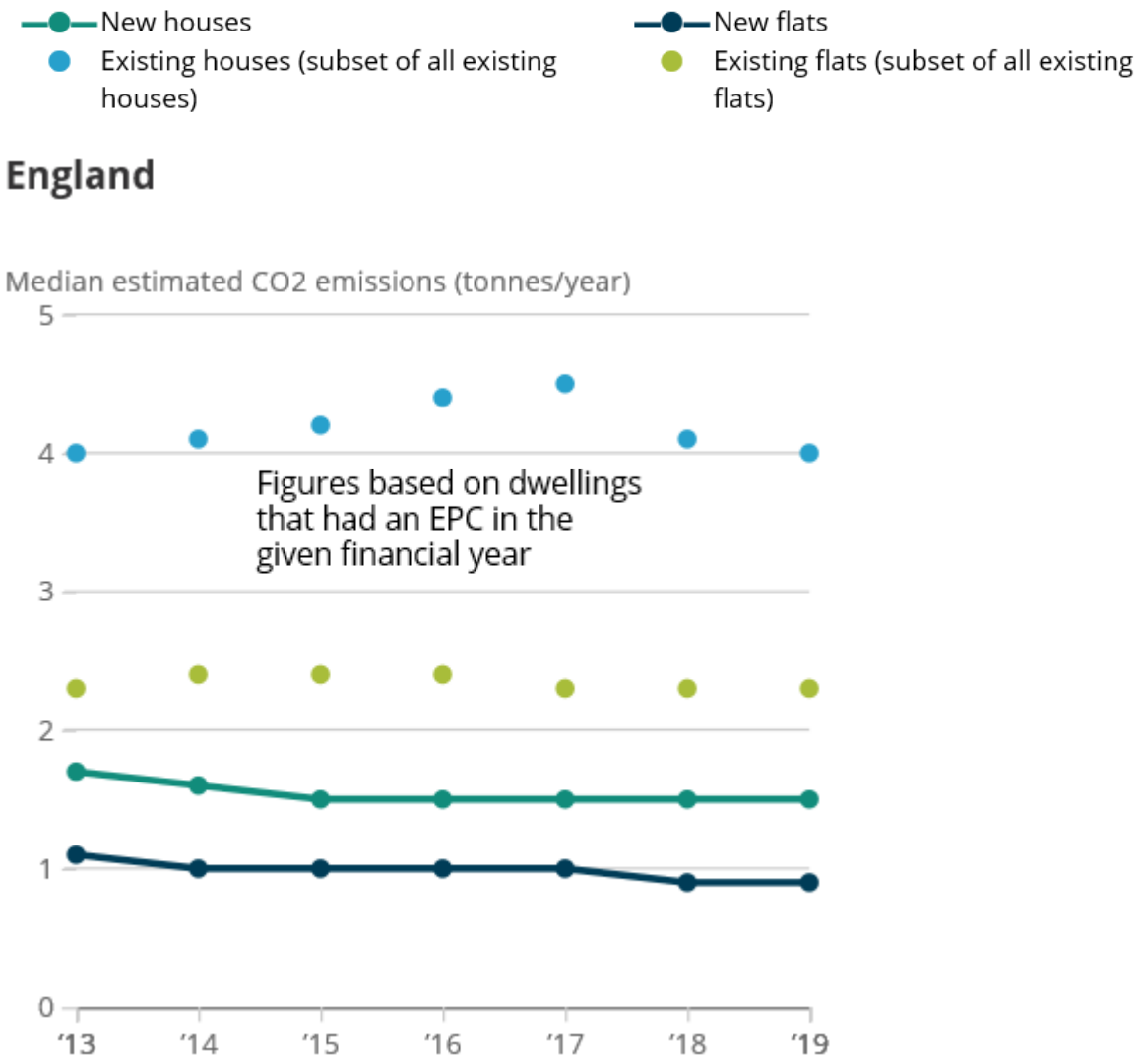
[8] P4 https://www.instituteofhealthequity.org/resources-reports/the-health-impacts-of-cold-homes-and-fuel-poverty/the-health-impacts-of-cold-homes-and-fuel-poverty.pdf

Median energy efficiency scores for new and existing flats and houses, financial year ending 2013 to financial year ending 2019[9]



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

Median estimated Carbon Dioxide (CO_2) emissions (tonnes/year) for new and existing flats and houses, financial year ending 2013 to financial year ending 2019



3.2 Energy price rises 2021-23

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 October 2022 the price cap rise has brought typical bills[10] from £1,138 to £2,500, even under the government's Energy Price Guarantee. Taking into account the £400 Energy Bills Support Scheme for households, the effective increase is still a near-doubling of bills from 2021 to winter 2022-23.

Measures to reduce domestic energy use can benefit residents greatly in this context, with the New Economics Foundation estimating that the lowest

[10] 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

income households may lose 5-10% of income due to current inflation levels – significantly more than other households and potentially pushing residents who may have been struggling already into crisis[11].

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.

3.3 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 heating and other appliances, including switching from gas boilers to electric heat pumps
- Behavioural changes

Replacement of gas boilers with electric heat pumps offering 250-400% efficiency[12] 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 networks[13]. 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 makes possible home efficiency improvements delivered by providers who can achieve a predictable investment return, while bringing in larger finance options such as institutional lending by providing a reliable return[14].

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 all opportunities for the retrofit programme. Development of

[11] https://neweconomics.org/2022/05/losing-the-inflation-race
[12] https://www.gov.uk/government/publications/cost-optimal-domestic-electrification-code
[13] https://heatthestreets.co.uk/shared-ground-loop-array/
[14] https://www.greenfinanceinstitute.co.uk/wp-content/uploads/2020/06/Financing-energy-efficient-buildings-the-path-to-retrofit-at-scale.pdf

energy efficiency knowledge and supply chain capacity is also an important area of interconnection between strategies for domestic and non-domestic buildings, with shared challenges and opportunities.

Tackling overheating is also an increasingly important consideration as the climate changes, which was illustrated in stark terms by record high temperatures in the UK during summer 2022. Many of the fabric measures that reduce heat loss will also maintain cooler indoor temperatures during the summer months due to reducing the movement of heat into a home. Additionally, building improvements such as carefully designed shading and in some cases, high efficiency cooling systems that can also function as heat pumps during winter, may be beneficial for vulnerable residents.

Key measures are summarised below – the fabric upgrades are all considered by the Climate Change Committee as part of its decarbonisation scenario modelling[15]. Some of these are low disruption and many highly cost effective.

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 Internal wall insulation can be cost effective and practical in many circumstances
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[16] [17]
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.
Floor insulation	Predominantly suspended timber floors, usually pre-WW2; although solid	Floor insulation requires careful consideration to avoid unintended consequences, but high quality insulation will reduce heat loss and improve comfort: due to lower conduction through the floor

[15] 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/

[16] https://www.gov.uk/government/statistical-data-sets/energy-performance

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

Fabric measures	Type of property suitable	Programme considerations
	floors may be considered	fabric and avoiding air infiltration/draughts in timber floors
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. Nevertheless the benefit may be significant either for first time double glazing or in replacing older or poor quality double glazing with air-tight installations of high performance doors/glazing.

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	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. 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.

3.4 Links to other strategies and policies

The central government strategy **Sustainable warmth: protecting vulnerable households in England**[18] 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

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

Other linked strategies include[19]:

- Council Plan
- Climate Change Strategy
- Local Plan climate change policies CC1 and CC2
- York Economic Strategy
- York Health and Wellbeing Strategy

3.5 Meeting the scale required: key challenges

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

- Responding to the challenge by developing a team with the right knowledge and skills
- Awareness raising, resident engagement, advice, support and behaviour change
- Supply chain and local skills development, with opportunities within the council, in procurement and for working with local education providers

[18] https://www.gov.uk/government/publications/sustainable-warmth-protecting-vulnerable-households-in-england

[19] https://www.york.gov.uk/10YearStrategies

- Leveraging central government funding opportunities alongside development partnerships to accelerate new financial products
- Embedding a whole-house retrofit pathway approach to EPC Band C with significant reductions in heat demand 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'
- Identifying 'fuel poor' households and targeting interventions
- Tackling the poorest performing Private Rented Sector (PRS) homes

3.6 PAS2035

PAS2035 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 within[20].

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 PAS2035 in council retrofit works where practicable.

The key roles in delivering this process point to priority skills needs, including Retrofit Assessors, Retrofit Co-ordinators[21], Retrofit Designers and Installer competencies under the related TrustMark/PAS2030 requirements.

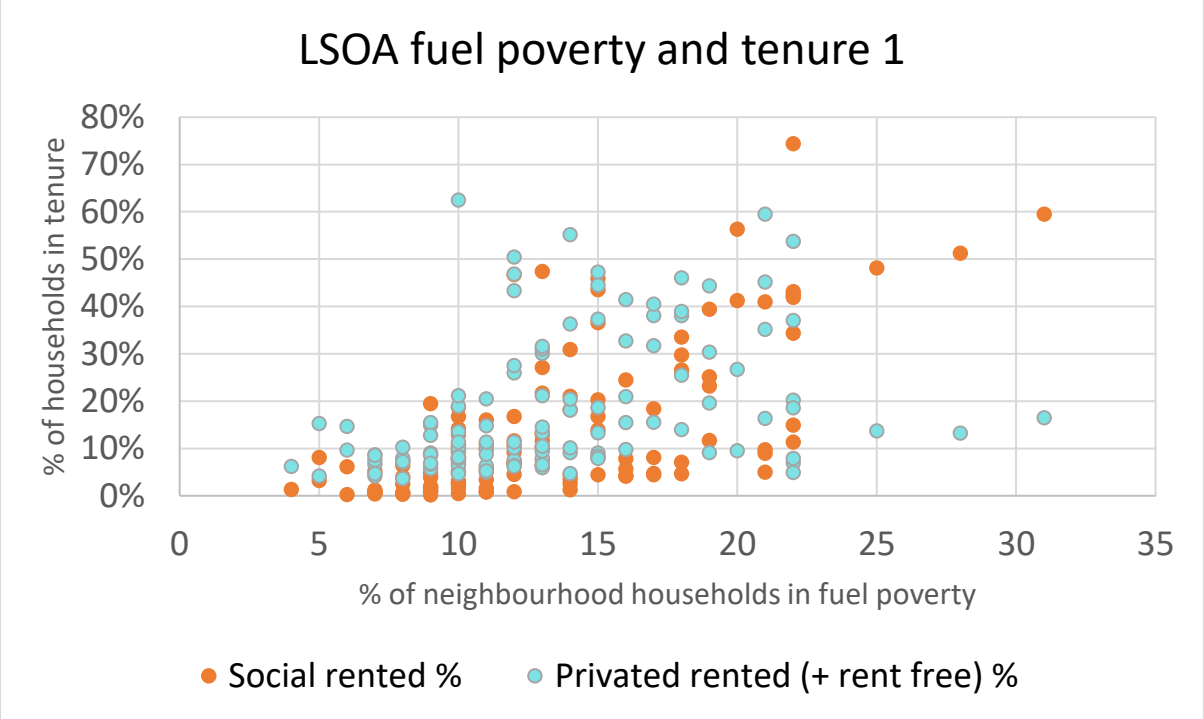
[20] https://www.trustmark.org.uk/tradespeople/pas-2035
[21] https://retrofitacademy.org/what-is-the-retrofit-coordinator-role/#:~:text=Retrofit%20coordinators%20provide%20oversight%20for,the%20new%20PAS%202035%20framework.

3.7 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).

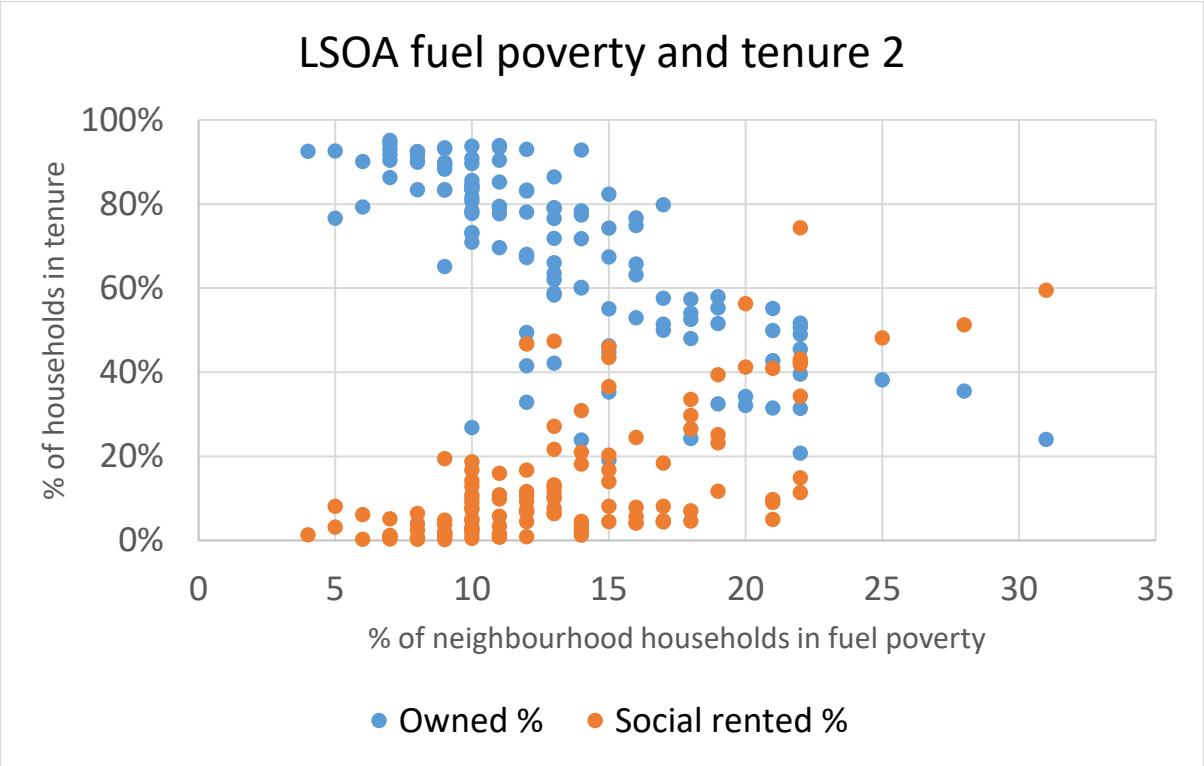
Whilst fuel poverty exists across all tenures in York, the relatively high average incomes amongst homeowners and private renters, and the needs-based social housing allocation policies create a distinctive pattern. It is also important to note that, as highlighted above, costs of home energy has become 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):



Source: MHCLG, analysis of central government fuel poverty modelling

It is also negatively correlated with owner occupied home incidence:



Source: MHCLG, analysis of central government fuel poverty modelling

3.8 Actions and future timescale

This Action Plan sits under the Climate Change Strategy, which sets the overall pathway and informs the details and targets of this document. It is intended that as our retrofit programmes develop further detail on the pathways to net zero will be added to the Action Plan and this document 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
- Prepare Social Housing Decarbonisation Fund (SHDF) Wave 2 bid to improve around 110-115 council owned properties to EPC C standard
- LAD2 programme delivery across both the council's own stock and through a Registered Provider partner
- "Rapid response" smaller efficiency measures programme for council tenants who are identified as vulnerable to high heating costs during 2022-23
- 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

- Procurement of multi-year strategic delivery partner during 2022-3
- 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
- Ongoing skills programme for Building Services staff to build capacity
- Determine target for all CYC properties to reach EPC C minimum and commission data informed pathway to whole-stock net zero ambition by 2030

Private rented sector

- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Pilot small scale resident practical support where this can increase uptake of retrofit work for eligible households at risk of fuel poverty
- Maximise ECO4 delivery in York over the programme lifecycle 2022-26
- 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

Owner occupied sector

- Identify resource to establish a cross-tenure energy advice service for all residents during 2022/23
- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Pilot small scale resident practical support where this can increase uptake of retrofit work for eligible households at risk of fuel poverty
- Produce retrofit communications plan to engage communities and raise awareness
- Maximise ECO4 delivery in York over the programme lifecycle 2022-26
- 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
- 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
- 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 apprenticiships

- Climate Change Supplementary Planning Document (SPD) produced

  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 electrification

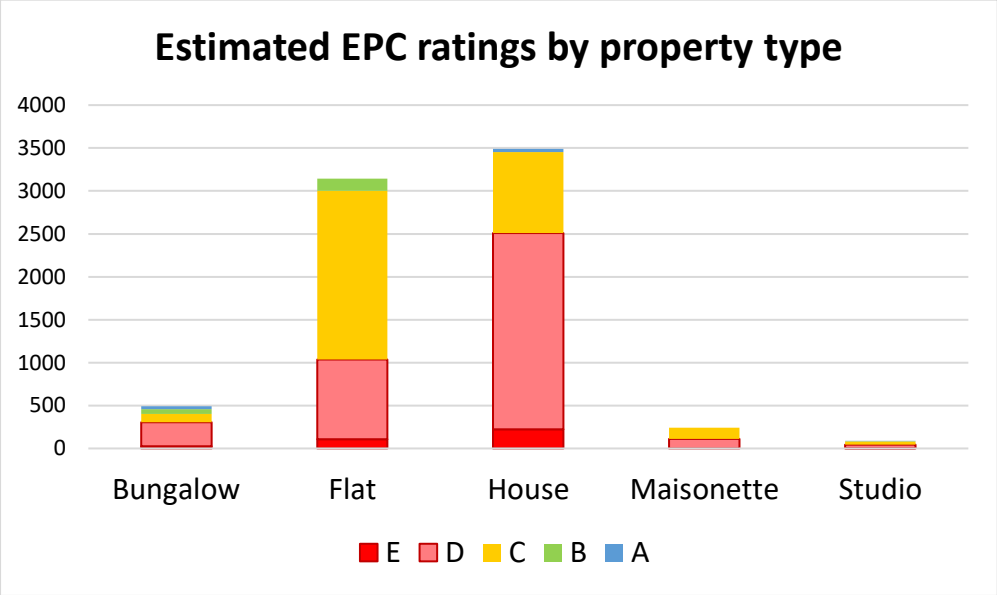
Cross-tenure responses

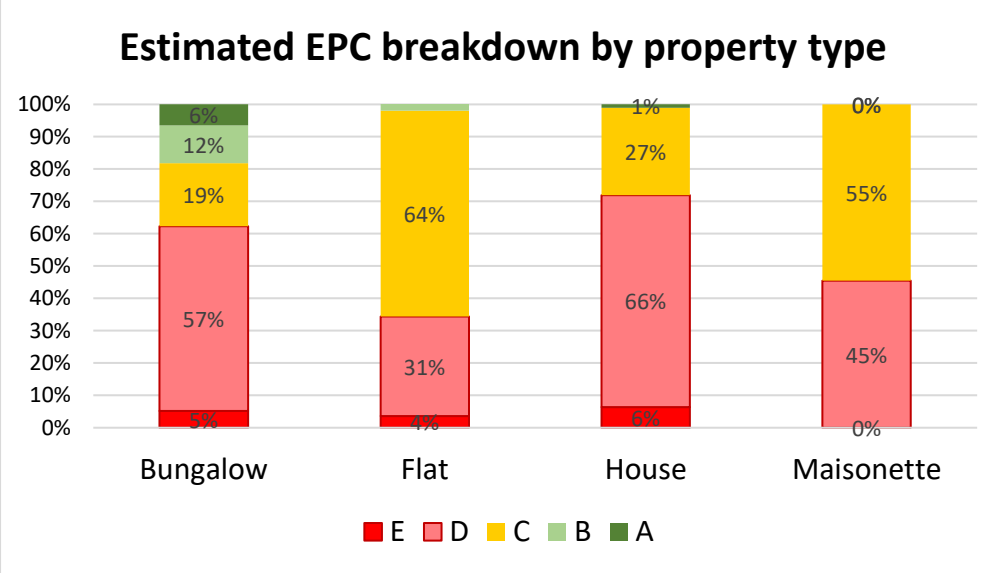
- Identify resource to establish a cross-tenure energy advice service for all residents during 2022/23
- Alongside the Economic Development team, extend existing links with local colleges in addition to other training providers to develop a retrofit skills pathway whether in Further Education or new decarbonisation competencies of existing suppliers and workers, also supporting apprenticiships 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
- Build on existing partnerships to set up a local Retrofit Forum to share knowledge, ideas, skills and good practice examples

4. 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.

Broad property types estimated from a sample of over 500 EPC surveys undertaken over the past 5 years are shown below:





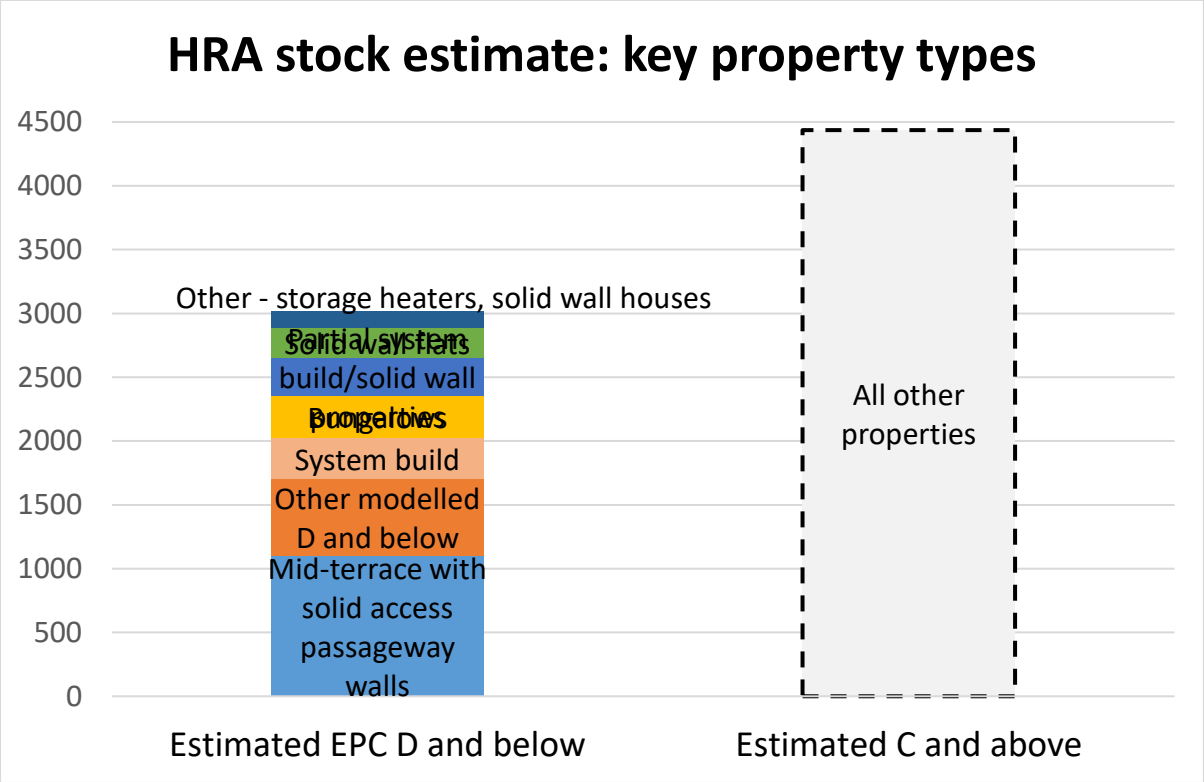
The council's 2019 HRA stock modelling exercise identified the following key archetypes as retrofit investment priorities:

- 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 performaing homes. As explored below, properties across the social rented sector in York are more likely to have a good EPC raiting 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 modelled data informed by the industry standard Parity Projects Portfolio system:



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.

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.

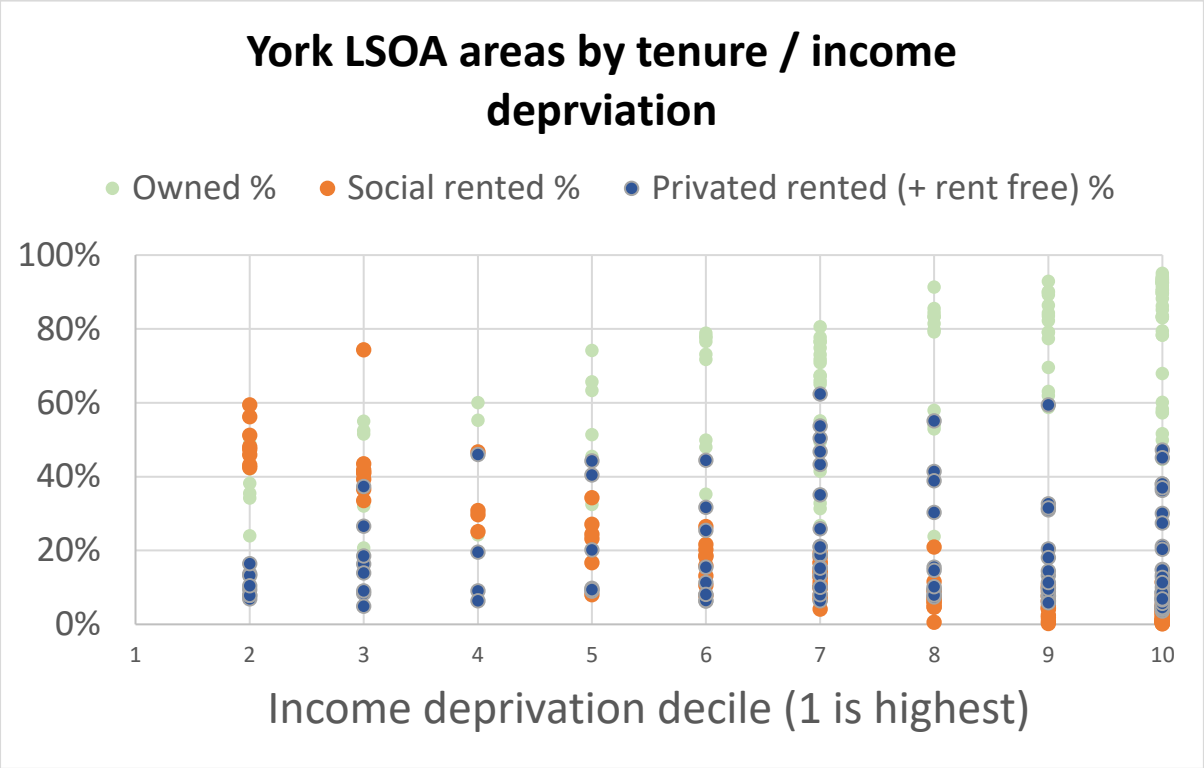
Analysis of HRA retrofit opportunities suggests emerging priorities to improve the quality of homes, reduce tenant bills and decarbonise the housing stock are:

- Fabric improvements to homes with uninsulated walls and other high cost-effectiveness measures on “worst first” basis
- Hybrid heat pumps in gas heated homes, which can potentially reduce gas boiler use for heating by 80% and heating / hot water CO2 equivalent emissions by over 50%[22]
- Solar PV and PV-Thermal to mitigate energy poverty and reduce carbon emissions
- Replace direct electric heating / hot water and pilot high efficiency heat loops

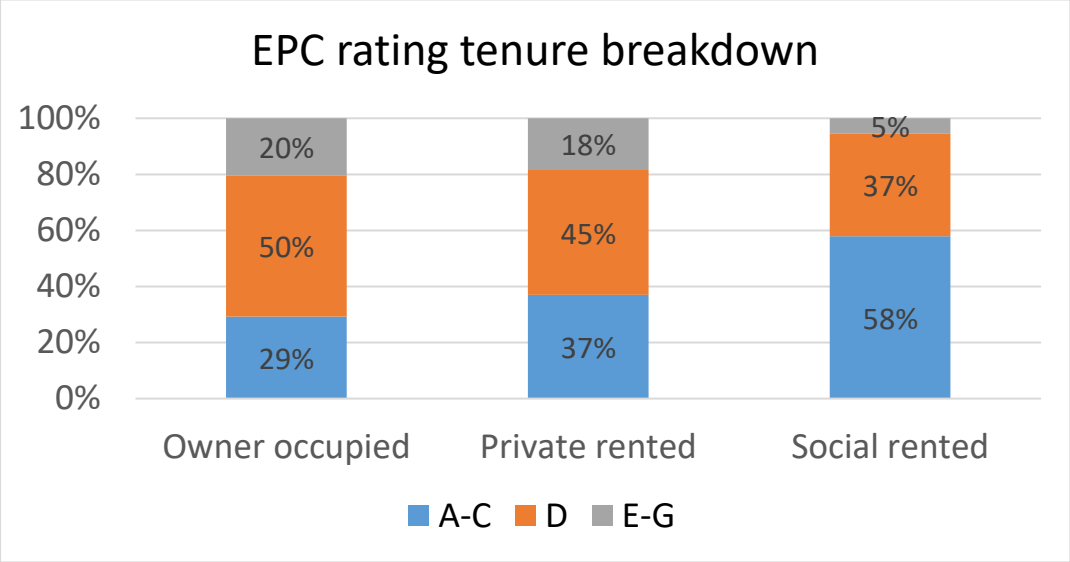
4.1 Tackling fuel poverty

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 depviration and social rented tenure properties at the Lower Super Output Area (LSOA) level:

[22] Appendix 1 https://www.gov.uk/government/publications/cost-optimal-domestic-electrification-code



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 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 more affordable energy bills.

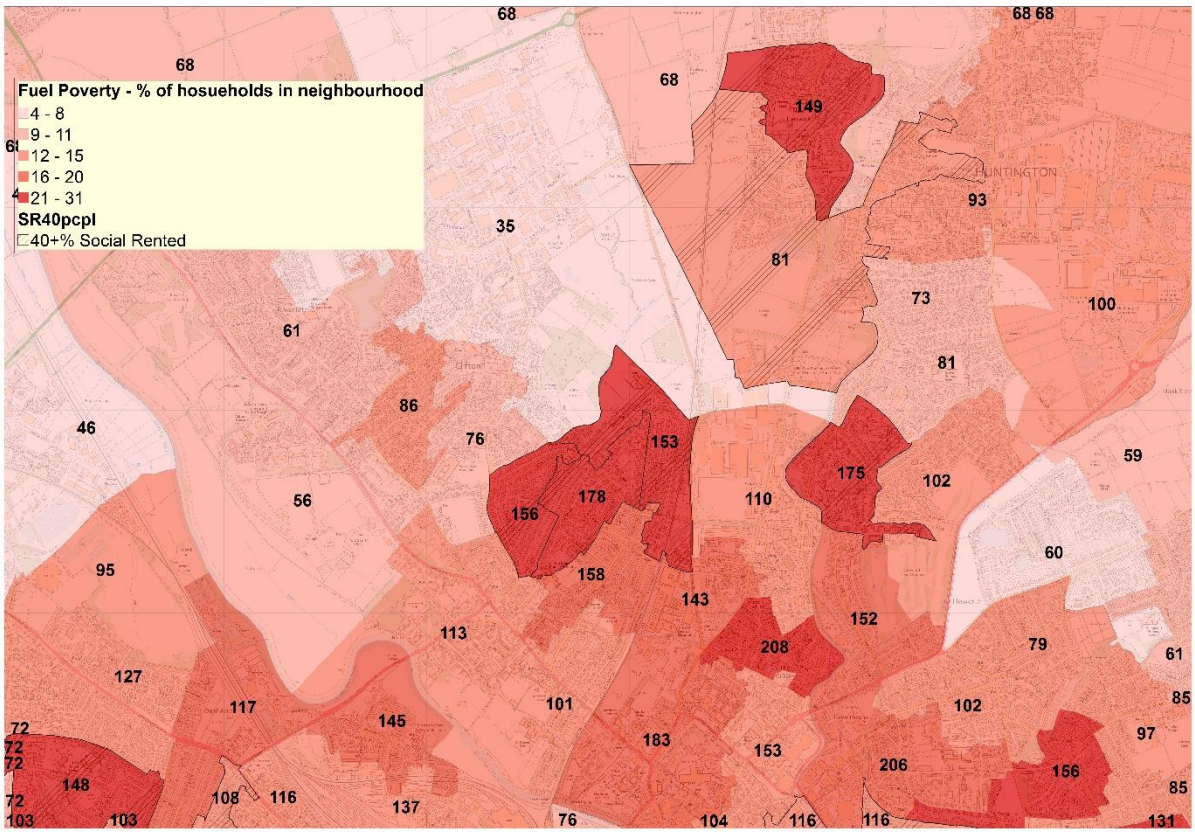


This is highlighted in a comparison of neighbourhood areas in York with high levels of fuel poverty identified in government statistics[23]. Fuel poor households are concentrated in areas of high social housing or student-oriented private rental tenure such as Clifton and New Earswick in the North York map, with Acomb (West) and Tang Hall (East) shown in the South York map.

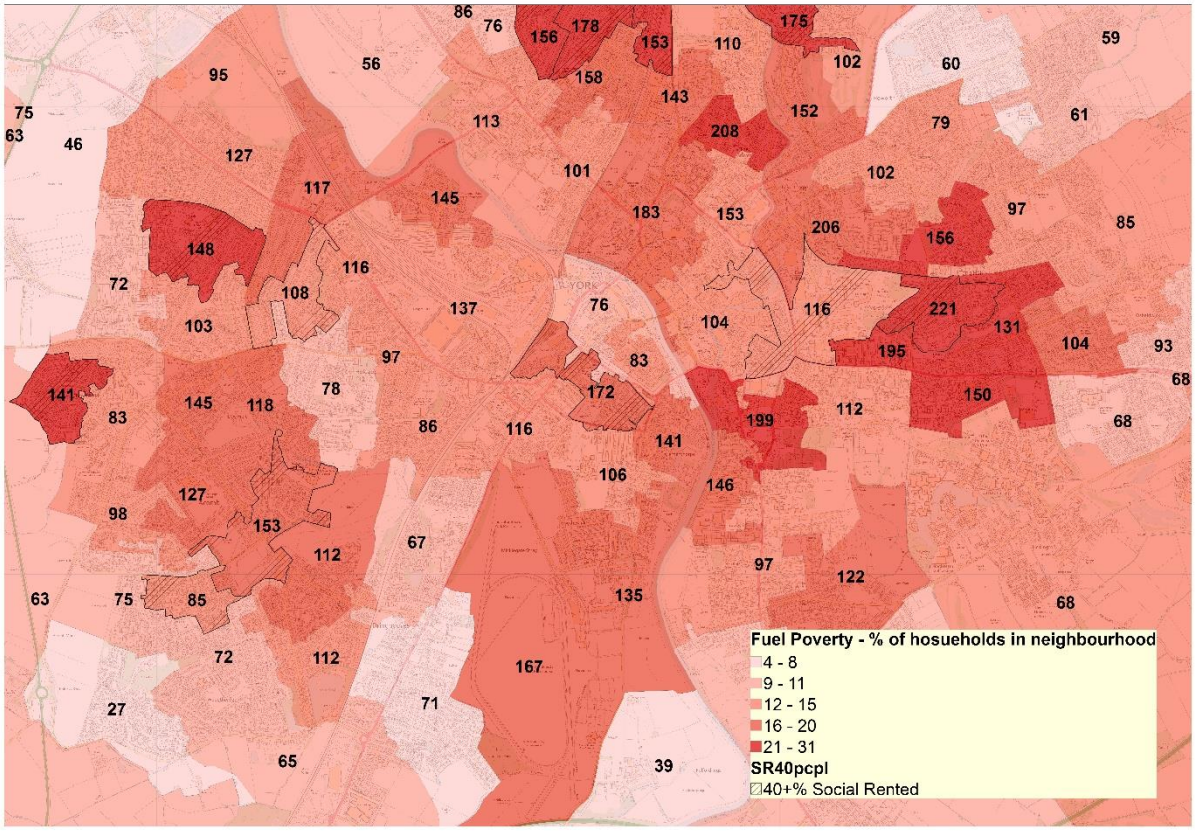
The numbers shown are the number of estimated fuel poor households in each neighbourhood area, the colour intensity indicates the proportion of the total properties this represents. Shaded and outlined areas have 40% or more social rented stock in total. The maps are shown on the following page.

[23] 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**



4.2 HRA Investment Programme

Using an estimate of £5,000 per property, the cost to bring the approximately 2,750-3,000 HRA homes currently at EPC D-F up to a C rating, would be between £13.75-15m at current cost. This takes into account some potential for match funding as well as savings from incorporating work into other capital programmes. While in many cases it will be possible to reach EPC C at lower cost than £5,000 per property this illustrative scenario builds in flexibliity to maximise fabric improvement as part of the pathway to net zero.

Potential greenhouse gas emisssions savings from bringing these homes up to an EPC C rating are in excess of 1,600 tonnes of CO2 equivalent annually. This could bring a combined total annual energy savings in the region of £725,000 at an estimated avarege of £300/year per home – much of which is likely to be spent in York's local economy. This is addition to the benefits from improved comfort and healthier homes for tenants.

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, dependent 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. There is a useful 2021 report apprisaing the shortcomings of the "Reduced SAP" method used in producing EPCs of existing homes and pointing to the imrpovements needed for the method to be the data-led home decarbonisation tool needed[24].

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:

- A primary route for investment is likely to be Band D properties eligible for 50% funding through the government's Social Housing Decarbonisation Fund programme in the event the council's bid is successful, with a Wave 2 delivery window running from April 2023 to March 2025

[24] https://www.levittbernstein.co.uk/research-writing/making-sap-and-rdsap-11-fit-for-net-zero/

- 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
- Enabling support for residents, for example practical decluttering of loft or roof spaces to facilitate high cost effectiveness insulation and fabric improvement measures
- 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

4.3 Planned capital maintenance and other investment opportunities

The stock modelling report also identified significant opportunities to improve energy performance of HRA homes through intergrating 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. The below figures are indicative and subject to review via the accompanying Asset Plan 2022-27.

Capital investment items	5-year investment sum (to 2026/27)
Heating system	£4.2m
Kittchen/bathroom Tenants Choice	£10.4m
Standing water projcet	£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 is intended 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.

4.4 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)[25], using a mix of HRA and central government funding sources. Similar approaches have been carried out in Sunderland[26] and Adur and Worthing[27]. While there are no comparable large blocks in York to the Leeds and Sunderland schemes, GSHP or Air Source Heat Pumps (ASHP) may be incoporated into capital investment programmes in York's local context, with property-specific solutions identified.

Nottingham City Homes[28] and Sutton Council[29] 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 distruption 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.

[25] 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
[26] https://www.kensaheatpumps.com/social-housing/the-uks-largest-ground-source-heat-pump-gas-replacement-programme-in-tower-blocks/
[27] https://www.adur-worthing.gov.uk/news/archive/pr21-155.html
[28] https://www.nottinghamcityhomes.org.uk/news/news/more-ultra-low-energy-homes-on-the-way/
[29] https://www.sutton.gov.uk/info/200670/environmental_sustainability/2291/sutton_s_zero_carbon_retrofit_pilot_project

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:[30]

- 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
- 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 avaiable. A rapid-response handyperson service has been established to offer "quick win" immediate improvements for vulnerable council tenants such as draft proofing, LED lightbulbs and loft hatch insulation, supporting residents during the unprecedented energy costs of winter 2023. Other programmes of support delivered by the council include Fuel Vouchers, the Household Support Fund, the Energy Rebate Scheme and the York Financial Assistance Scheme [31].

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 – with over 100 furhter expected to follow in Wave 2 if successful
Prepare Social Housing Decarbonisation Fund (SHDF) Wave 2 bid for around 110-115 properties	Significant £800m programme extepected nationally, with minimum bids of 100 properties requested and delivery April 2023-March 2025.
LAD2 programme delivery across both the council's own stock and through a Registered Provider partner	Installation of Solar PV panels on 45 CYC properties during Summer 2022

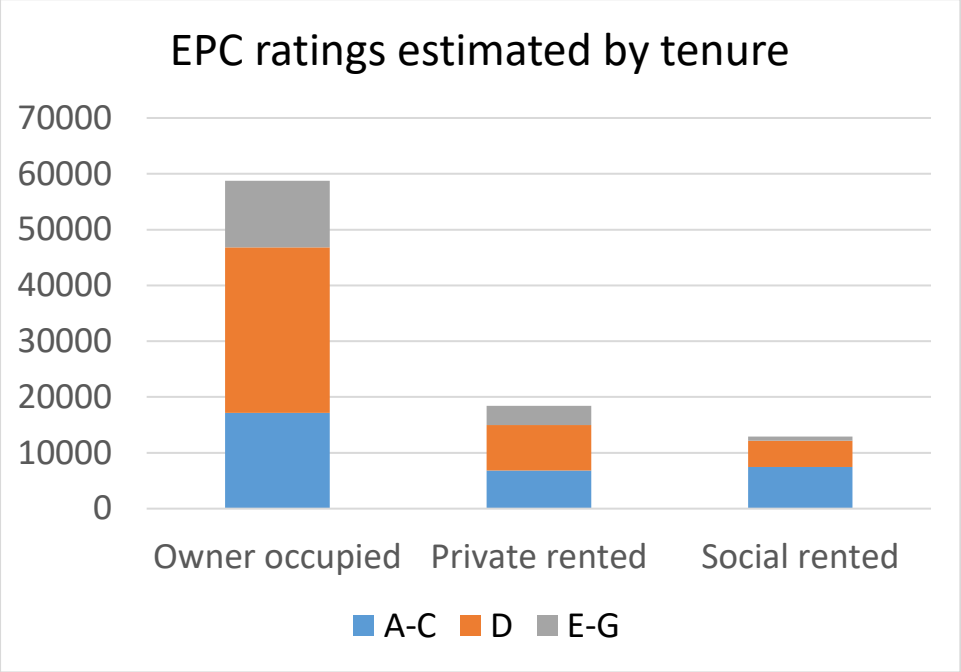
[30] https://www.sfha.co.uk/news/news-category/sfha-news/news-article/housing-associations-support-tenants-struggling-with-energy-costs

[31] https://democracy.york.gov.uk/ieListDocuments.aspx?CId=733&MId=13292 Item 6

Action	Progress / notes
	(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	Handyperson service in action to deliver “quick win” rapid intervention improvements during winter 2022-23
Idfentification of planned captial works opportunities for example potential for heat pump installation, roofing, windows and other cyclical maintenance programmes	This has been incorporated into SHDF Wave 2 bid, and the HRA Asset Plan 2022-27 which will incorporate a new Retrofit Standard
Procurement of multi-year 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 succesful alongside other programmes
Ongoing skills programme for Building Services staff to build capacity in low carbon heating, PAS2030 installer competencies and PAS2035 Retrofit Assessor and Retrofit Co-ordinator roels	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 idetnified, 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 and commission data informed pathway to whole-stock net zero ambition by 2030	This will be informed by ongoing work and analysis

5. Owner occupier sector

It is clear that a large majority of existing low energy performing dwellings are in the owner occupied sector. Tackling this sector will be essential to a decarbonisation pathway effectively addressing the climate emergency. Using EPC rating data and ONS tenure split estimates, it is estimated that 70% of EPC D rated properties and 74% of EPC E-G rated properties in the City of York are owner occupied.



Source: estimates from combined EPC and ONS tenure data

Homeowners could benefit significantly from reduced energy costs through retrofit investments[32] however research from the UK Green Building Council[33] highlighted that key barriers to realising these benefits include:

- Uncertainty over government grant and other funding eligibility
- Challenges in navigating supplier marketplace
- Limitations of existing financial products

The West Yorkshire Combined Authority "*Scaling Up Better Homes Yorkshire*"[34] identifies the need for a "Customer Journey" that:

> Starts with knowledge of what needs improving in each home, informs independent advice to occupants and owners which they can trust putting them on a path to a retrofit that retains that trust.

[32] https://pcancities.org.uk/energy-and-carbon/york
[33] https://www.ukgbc.org/news/ukgbc-publishes-new-insights-into-home-retrofit/
[34] https://shapuk.files.wordpress.com/2020/12/wyca-final-report.pdf

Engaging residents motivated by a sense of purpose around reducing carbon emissions and improving home comfort through retrofit home improvements will also be essential in building the sector, sharing knowledge and establishing successful supply chains. The role of the innovation diffusion curve has been recognised in many areas of consumer driven climate change action[35], with a growing minority who are willing to make more significant investments in future resilience and home comfort, often alongside other home improvements. These households are leading the way to a broader scale-up.

These priorities are particularly important given the local demographics of domestic energy efficiency in York, as highlighted below.

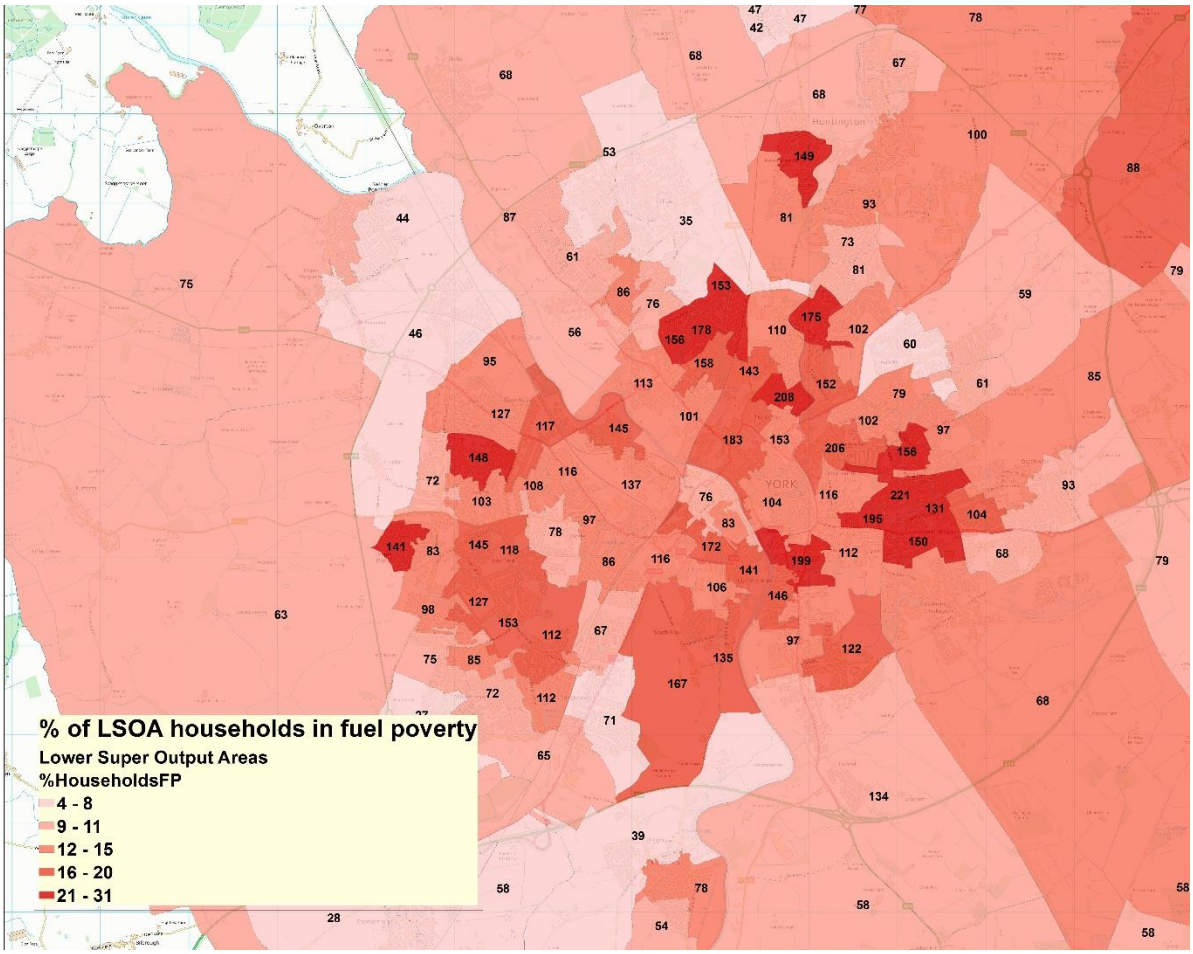
5.1 Fuel Poverty

Where homeowners in properties with poor energy performance also have a low household income, they may be considered to be in fuel poverty and eligible for grant based schemes. The council has a key role in delivering some government funded programmes and in widening access to others, with around £4m programmes to be delivered up to March 2023.

To meaningfully address carbon emissions in owner occupied properties however, other options will also be needed. Comparison of neighbourhood areas in York with high levels of fuel poverty identified in government statistics[36] illustrates that 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. These priorities can be taken into account in maximising opportunities through the new Energy Company Obligation 4 (ECO4) and ECOflex fuel poverty retrofit schemes[37].

Furthermore from the experience of programme delivery to date, support for some households to navigate potential temporary disruption and uncertainty may be necessary to enable successful delivery of the retrofit works.

[35] https://www.nesta.org.uk/project-updates/how-understanding-user-journey-heat-pump-adoption-will-generate-innovation/
[36] https://www.gov.uk/government/collections/fuel-poverty-statistics
[37] https://www.ofgem.gov.uk/publications/draft-energy-company-obligation-eco4-guidance-delivery-v01



5.2 Building a consumer market and energy advice provision

The UK Green Building Council research identified a need for an effective consumer market for “whole-house retrofit”. This would encompass both supply and demand. Support for both of these is needed to scale up the improvements in housing stock that are necessary to meet the decarbonisation ambitions and benefit local residents. Demand provides companies with the economic incentives and confidence to improve the retrofit ‘offer’ and deliver a service more in line with customer expectations; this in turn is needed to reduce barriers for homeowners in carrying out the works.

To build a **consumer supply market** both contractors/providers and longer term skills base are important. This would offer a simplified approach for residents without the extensive project management of different contractors currently required. The council can leverage significant influence in this area, through approaches discussed below.

“The customer journey”: household tailored advice

Availability of high quality, property and resident specific advice is essential. York Energy Advice[38] have launched an innovative new service to develop this provision locally, with advice for residents tailored across income maximisation, the energy provider marketplace, and savings through home energy efficiency. This complements the local Warmer Homes York[39] service. Another example is People Powered Retrofit working across Greater Manchester, who offer a holistic service to households including “end to end” support from starting out to evaluation and handover[40].

Scaling up the availability of these services is core to mass market retrofit in the owner occupied sector, and provision of trusted advice at no or low up-front cost is likely to be important in encouraging take-up of households who may be uncertain of the level of benefit in undertaking retrofit improvements. However in the current climate sources of funding are not clear. While presenting new opportunities the government’s Energy Company Obligation 4 (ECO4) scheme has a similar structure to the previous ECO3 in important respects with complex eligibility restrictions and limited funding availability likely to prevent large scale delivery through this route in York[41]. Other potential investment may be through engagement with private sector suppliers who have an interest in the development of long term demand for the marketplace. The Climate Change Commission earlier in 2022 identified a ”Comprehensive public energy advice service” as a key need and opportunity to accelerate housing decarbonisation[42], alongside other high priority policy improvements such as energy price reform.

This would also support broader resident awareness and motivation, and link to the potential for savings as energy prices rise. In this context it is clear that supporting the community of motivated households and providers who are towards the ‘innovator’ end of the uptake curve is essential to build this market and the supply chain and services associated with it. Building performance monitoring of temperature, humidity and ventilation pre- and post-works can also help provide additional certainty on benefits and support high quality projects through effective evaluation.

[38] https://yorkenergyadvice.org.uk

[39] https://yorkcommunityenergy.org.uk/projects/warmer-homes-york/#:~:text=Insulating%20homes%20makes%20them%20easier,process%2C%20see%20this%20explainer%20article

[40] https://retrofit.coop/

[41] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065823/eco4-government-response.pdf

[42] https://www.theccc.org.uk/publication/2022-progress-report-to-parliament/#downloads

The trajectory from household advice and assessment through to full project management and performance monitoring is summarised below. The provision of the initial service offer presents development potential over time with the potential to support the mass consumer retrofit market that will be needed for decarbonisation of housing.

Levels of Retrofit Advice Service – costs and expertise requirements increase with each level
1. Basic property and household assessment with advice on options and grant funding; community engagement
2. Detailed property assessment with surveys and 'whole house plan'
3. Support in identifying contractors for 'whole house plan' items
4. Project management of householder retrofit works
5. Post-works evaluation of retrofit project and supply chain development

It is proposed to explore opportunities for resourcing a cross-tenure energy advice service for all residents that can build the consumer market for home retrofit and support the economic, financial wellbeing, health and decarbonisation benefits of home energy efficiency upgrade projects. Enabling support for residents may also be a valuable service, for example practical decluttering of loft or roof spaces to facilitate high cost effectiveness insulation and fabric improvement measures.

Neighbourhood based retrofit programmes

Due to the impact of the Right to Buy, HRA stock is largely located in mixed tenure estates including a substantial proportion of owner occupiers. HRA stock programmes will be designed to include an 'offer' that residents in other tenures can also benefit from, where possible, on a 'whole streets' basis. This may be through a combination of other funding sources or for residents who are self-funding.

Strategic use of procurement and direct labour

The council will be a significant purchaser, enabler and provider of housing decarbonisation work. This gives an opportunity to use procurement

strategically in shaping the market, building supply chains for the future and working with partners to build the local skills base.

Additionally this can support supplier confidence through a 'pipeline' of work that give medium-term certainty for private sector investment decisions, supporting the consumer-oriented market that is needed.

There are also significant opportunities to increase **demand for 'whole-house retrofit'**.

Access to affordable finance

The West Yorkshire Combined Authority "Scaling Up Better Homes Yorkshire" report sets out the need for financial products that enable home owners to invest in retrofit and achieve a net return based on energy bill savings.

> Access to cheap, patient, flexible borrowing is important to creating an attractive offer to all forms of customer, other than those who can use their own savings. Providing an attractive finance offer enables quality control by specifying approved contractors. If the interest rate is kept low this could create a margin to pay for delivery costs[43].

Products to avoid up-front costs while increasing resident disposable income include some form of loan which is only paid back against a portion of the resident's energy bill savings, or an equity loan without ongoing repayments. There is increasing awareness of this in the financial sector, for example Nationwide Building Society recently led a joint call with others across the industry for a "retrofit revolution" including working towards better finance options[44]. This faces some challenges around payback times and only certain forms of work with high returns on financial investment will be suitable for this approach, with programmes offering 0% and part-subsidised finance ultimately essential to deliver the wider social benefits of successful retrofit programmes.

"Comfort as a service"

A service provision model where energy is not charged by the kWh, but instead delivered as part of a predictably priced comfort package[45] addresses split-

[43] https://www.ukgbc.org/news/ukgbc-publishes-new-insights-into-home-retrofit/
[44] https://www.nationwidemediacentre.co.uk/news/industry-leaders-call-on-government-for-retrofit-revolution-to-hit-crucial-2050-net-zero-targets
[45] https://www.greenfinanceinstitute.co.uk/wp-content/uploads/2020/06/Financing-energy-efficient-buildings-the-path-to-retrofit-at-scale.pdf

incentives and knowledge-gap factors slowing retrofit deployment across all tenures. This has not been delivered at scale yet however elements are included as part of schemes such as the Welsh Government's Optimise Retrofit programme[46].

The appropriate geographical scale for piloting this approach needs to be identified, but it is possible that this could be explored through the Devolution arrangements.

Planning process requirements

A new Supplementary Planning Document will be produced, providing guidance on the Climate Change policy areas of the Submitted Local Plan document. Requirements through the planning process for home energy efficiency upgrades will be reviewed to minimise barriers to residents undertaking improvement measures.

5.3 Owner occupied sector: key actions and targets

Short term: significant milestones in 2022/23

- Identify resource to establish a cross-tenure energy advice service for all residents during 2022/23
- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Produce retrofit communications plan to engage communities and raise awareness
- 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 apprenticiships
- Climate Change Supplementary Planning Document (SPD) produced
- 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 electrification

Medium term: progress during 2023/24, further milestone may follow

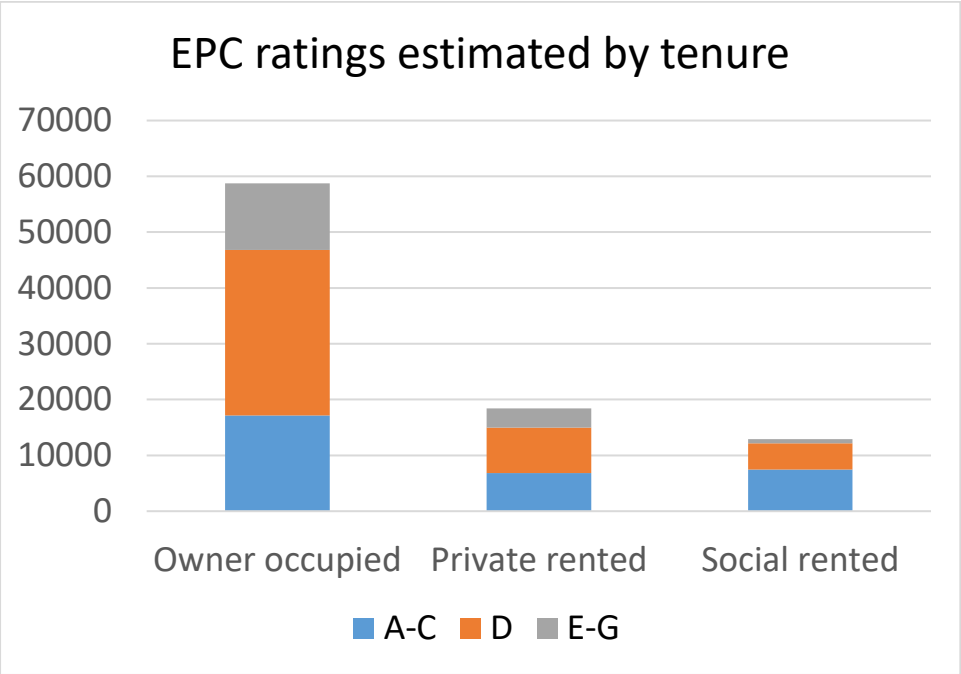
- Pilot small scale resident practical support where this can increase uptake of retrofit work for eligible households at risk of fuel poverty

[46] https://gov.wales/optimised-retrofit-programme

- Maximise ECO4 delivery in York over the programme lifecycle 2022-26
- 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
- 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

6. Private rented sector

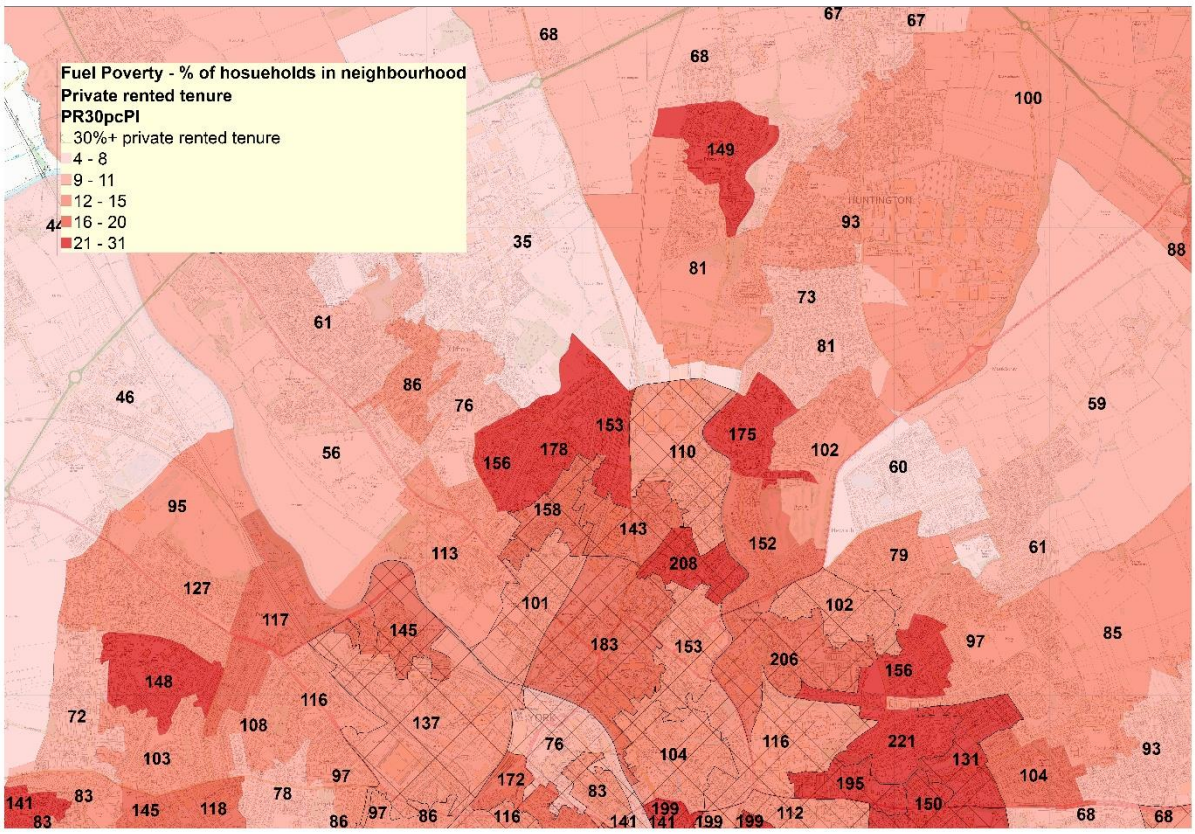
A significant proportion of the properties in York that are EPC rated D and below are in the private rented sector (PRS).



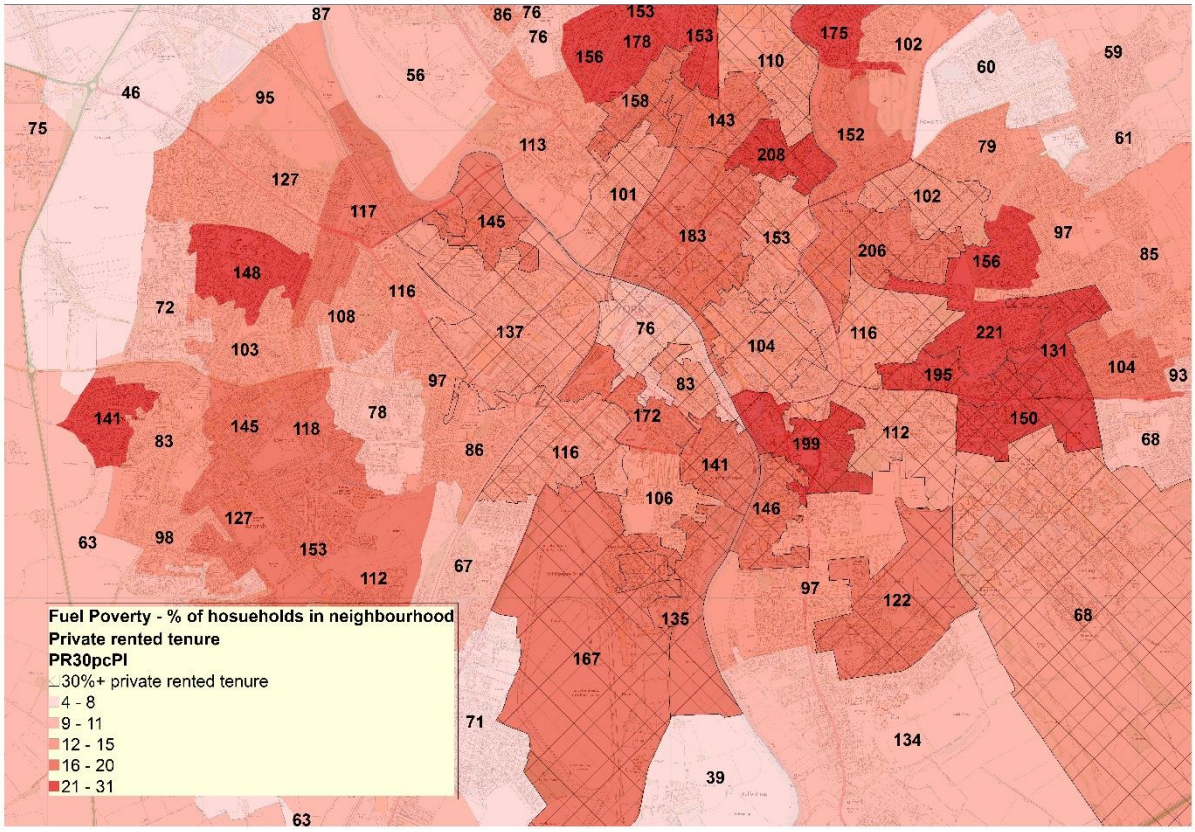
Source: estimates from combined EPC and ONS tenure data

There are also some concentrations of PRS fuel poverty in the City, predominantly located in areas including substantial student accommodation numbers. Identifying fuel poor households in this sector is important as it is usually either a requirement or a priority for central government funding programmes.

Fuel poverty and PRS concentration map: **North York**



Fuel poverty and PRS concentration map: **South York**



To improve energy efficiency in private rented sector homes, there are several interlocking areas of opportunity for the council:

- Central government funded schemes LAD2, LAD3 abd HUG2 and the energy company funded ECO4
- Minimum Energy Efficiency Standards (MEES) and other regulatory changes
- HMO licensing
- Landlord and resident engagement
- Finance, service and supply chain innovation to provide an attractive offer for landlords that can deliver a retrun on investment
- Enabling support for residents may also be a valuable service, for example practical decluttering of loft or roof spaces to facilitate high cost effectiveness insulation and fabric improvement measures.

6.1 Central government funded schemes and consumer market innovation

Government LAD1B/LAD2/LAD3 funded schemes include delivery of improvements in PRS properties.

The Energy Company Obligation 4 (ECO4) programme 2022-25 has recently had a government consultation response[47]. The outlined proposals would offer opportunities for some landlords to meet the future MEES as set out below. Another important resource to support this is the provider and finance consumer market innovations outlined in the Owner Occupiers section above.

6.2 Minimum Energy Efficiecny Standards (MEES)

Since April 2018 it has been unlawful to rent out residential premises that do not reach a minimum energy efficiency standard of E on a new tenancy. Since April 2019, landlords of domestic properties with an EPC rating below E must carry out up to £3,500 worth of works to improve their energy efficiency even if they cannot obtain third-party funding to meet the costs. Since April 2020 it has been unlawful to let any residential property whose EPC doesn't meet an E as a minimum, unless they have a valid exemption in place.

47 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065823/eco4-government-response.pdf

Councils are responsible for enforcing compliance with the domestic minimum level of energy efficiency. This presents a resource challenge to Local Authorities. To try and find ways of addressing this City of York Council has participated in a central government funded pilot delivering a more proactive enforcement service. Outcomes have been estimated for F & G rated PRS properties where a new, valid EPC has been produced following contact from the project:

- The total amount of CO_2 being produced by 50 properties has reduced by 193.4 tonnes per year;
- The estimated energy used to heat 45 properties has reduced by 243,546 kWh per year, which equates to a saving of £33,900 (based on a cost of 13.92p per kWh for the Yorkshire region)

The Government are looking to further increase the standards required of PRS housing in 2025. This will provide additional challenges at a resource level but new opportunities to tackle the climate emergency, improve the health of our residents and reduce incidences of fuel poverty.

The proposals are to amend the minimum standards so that from April 2025 it will be unlawful to let a residential premises that does not reach a minimum energy efficiency standard of C on a new tenancy and from April 2028 to make it unlawful to let any residential property whose EPC doesn't meet an C. There would be an increased maximum investment amount to a £10,000 cost cap, and some additional powers. Resources would also be needed for Local Authority enforcement.

It should be noted that currently the approach by the government is that government funding should not be used to make these properties compliant with existing regulations, but funding may be used in addition to landlord investment to improve the property beyond the minimum legal requirement. There is an expectation for improvements by April 2025 which will present an opportunity to work collaboratively with landlords in energy efficiency improvement programmes to support compliance and maximise benefits of local schemes. Equity loans or other retrofit-oriented finance produts may offer substantial value to landlords in meeting regulatory obligations and reduce the burden on the councli's enforcement activity.

6.3 Houses in Multiple Occupation (HMO) licensing

Our HMO local implementation policy for licensing requires landlords to provide full Energy Performance Certificates to ensure that they comply with the Minimum Energy Efficiency Standards so that properties with F and G ratings are not being let unless the licence holder has registered their property on the Government Exemption register and has provided the relevant evidence to support the exemption.

Once the EPC has been examined, if necessary, conditions can be attached to the licence requiring recommendations within the EPC or measures that have not been undertaken, such as cavity wall or loft insulation, to be carried out within a set timescale.

6.4 Private rented sector key actions and targets:

- Identify resource to establish a cross-tenure energy advice service for all residents during 2022/23
- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Pilot small scale resident practical support where this can increase uptake of retrofit work for eligible households at risk of fuel poverty
- Maximise ECO4 delivery in York over the programme lifecycle 2022-26
- 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
- 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 apprenticiships
- 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 electrification

7. Retrofit Action Plan 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.

Draft proposals were reviewed at Housing and Community Safety Policy and Scrutiny Committee in October 2021 and July 2022. Further consultation with partners, stakeholders and residents followed culminating in a City-wide resident consultation which closed on Monday 31st October 2022, with 70 formal responses received. Invaluable feedback has been provided through these routes which have supported improvements to the Retrofit Action Plan through the drafting process.

The results supported the overall direction and purpose of the Retrofit Action Plan, with large majorities agreeing that:

- Climate change and reducing carbon emissions in York is “extremely important” (84%)
- 90% said home energy retrofit is either extremely important or important (65% extremely important plus 25% important); and 98% said it is either extremely important or important for the cost of living (71% extremely important 27% and important).
- A Retrofit Action Plan was considered extremely important or important by 88% (65% extremely important and 23% important)
- Large majorities of respondents who expressed an opinion considered that the “opportunities for domestic energy efficiency retrofit are recognised in the draft Retrofit Action Plan”, and that “the draft Retrofit Action Plan identifies appropriate local policy responses to take advantage of these opportunities”.

A number of valuable qualitative comments were also received which can be taken into account, including additional examples of successful retrofit projects and suggestions around some of the solutions noted in this paper. The full quantitative question responses are shown below.

	Extremely important/useful	Very important/useful	Not at all, not so much, or somewhat important/useful
How would you rate the importance of climate change and reducing carbon emissions for York?	**84.2%**	10.5%	5.3%
How important do you consider home energy efficiency to be in tackling climate change and reducing carbon emissions?	**64.9%**	24.6%	10.5%
How important do you consider home energy efficiency to be in tackling the cost of living?	**71.4%**	26.8%	1.8%
How useful do you consider a Retrofit Action Plan to be in supporting residents to reduce energy bills and cutting carbon emissions?	**65.1%**	23.3%	11.6%

	Yes	No	Don't know	Proportion of respondents expressing an opinion: Yes
Do you feel that the opportunities for domestic energy efficiency retrofit are recognised in the draft Retrofit Action Plan?	81.1%	18.9%	0.0%	**81.1%**
Does the draft Retrofit Action Plan identify appropriate local policy responses to take advantage of these opportunities?	51.3%	10.3%	38.5%	**83.3%**
Does the draft Retrofit Action Plan set out an overall direction for York that offers alignment with your organisation, or that you feel addresses the important issues for you?	54.1%	2.7%	43.2%	**95.2%**
Would you consider hybrid heat pump systems, which retain a fossil fuel boiler for hot water but use a low carbon heat pump for the majority of the heating, to be an acceptable carbon saving compromise for homes where a full heat pump system installation may be challenging?	42.9%	31.0%	26.2%	**58.1%**

What would you consider the main challenges of making your home more energy efficient through retrofit improvements to be?	Responses	
The cost and what will be most cost efficient	68.42%	39
Finding a builder that I can trust who are available to do it	54.39%	31
If I can afford the works	43.86%	25
Don't know what will work best for my home	35.09%	20
The disruption/possible moving out while work is done	24.56%	14
Don't know where to start	21.05%	12
Other (please specify)	15.79%	9

The Retrofit Action Plan is intended to be a 'living document' in consideration of the rapidly developing home retrofit sector, and will be reviewed on a regular basis to take into account newly emerging evidence, funding and technological opportunities.

8. Retrofit Action Plan 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
- Prepare Social Housing Decarbonisation Fund (SHDF) Wave 2 bid to improve around 110-115 council owned properties to EPC C standard
- LAD2 programme delivery across both the council's own stock and through a Registered Provider partner
- "Rapid response" smaller efficiency measures programme for council tenants who are identified as vulnerable to high heating costs during 2022-23
- 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
    - Procurement of multi-year strategic delivery partner during 2022-3
    - 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
    - Ongoing skills programme for Building Services staff to build capacity
    - Determine target for all CYC properties to reach EPC C minimum and commission data informed pathway to whole-stock net zero ambition by 2030

Private rented sector

- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Pilot small scale resident practical support where this can increase uptake of retrofit work for eligible households at risk of fuel poverty
- Maximise ECO4 delivery in York over the programme lifecycle 2022-26
- 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

Owner occupied sector

- Identify resource to establish a cross-tenure energy advice service for all residents during 2022/23
- Delivery of LAD1B, LAD2 and LAD3 programmes by March 2023
- Pilot small scale resident practical support where this can increase uptake of retrofit work for eligible households at risk of fuel poverty
- Produce retrofit communications plan to engage communities and raise awareness
- Maximise ECO4 delivery in York over the programme lifecycle 2022-26
- 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
- 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
- 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 apprenticiships
- Climate Change Supplementary Planning Document (SPD) produced

  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 electrification

Cross-tenure responses

- Identify resource to establish a cross-tenure energy advice service for all residents during 2022/23g
- 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 apprenticiships 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
- Build on existing partnerships to set up a local Retrofit Forum to share knowledge, ideas, skills and good practice examples