



NORWICH City Council

Committee name: Scrutiny

Committee date: 23/11/2023

Report title: Report from the Retrofitting Task and Finish Group: Warm, low bills, no carbon: a plan for Norwich's council homes

Portfolio: Councillor Jones, Deputy leader and cabinet member for housing and community safety

Report from: Scrutiny Task and Finish Group: Councillors Ackroyd, Driver, Galvin (chair), Osborn, Prinsley and Stutely

Wards: All wards

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Purpose

To assess the business case for retrofitting the council's housing stock, investigate how investment will be allocated and if there is the capacity to deliver this and to adjust the corporate plan to include specified outcomes linked with these areas.

Recommendations

That the scrutiny committee recommends that cabinet approves the following recommendations:

It is recommended that Norwich City Council will:

- a) Recognise its key roles in essential decarbonisation, combatting fuel poverty and health and economic development, add retrofitting as a core and central theme to the new Corporate Plan.
- b) Develop a state of evidenced readiness for future funding to allow quality funding applications to be submitted efficiently for all available funding opportunities.
- c) Allocate sufficient resource to reach this state of readiness, enabling the council to plan strategically and to effectively manage projects, particularly in the housing team. Writing quality bids, planning strategically and managing the projects will take significant additional resource.
- d) Agree to monitor the effectiveness of the housing team restructure to ensure that the team includes the necessary skills and capacity to deliver retrofitting. Similarly, review the capacity of key support services in other teams within the council – e.g. procurement – to ensure an

understanding and culture of retrofit.

- e) Offer ongoing training and advice, including site visits, to all councillors and staff in relation to retrofitting so that they can be a conduit for information to residents.
- f) Aspire and plan to deliver retrofit services through its own companies. Long term, contracts need to be written with this possibility in mind, and development and business planning undertaken to support this as an income stream. This entails exploring opportunities for new builds in collaboration with Lion Homes, assessing the feasibility and ambition for Lion Homes to offer retrofit services, and consequently identifying the necessary support the company will require for successful implementation.
- g) Examine Norwich City Services Limited (NCSL) opportunities and ambition for income generation related to retrofit, and develop an early stage plan in readiness.
- h) Use the knowledge and experience of work already undertaken by Lion Homes to understand resident behaviours and identify the most effective way of communicating with residents around retrofit, as well as using research and experience from experts in this field.
- i) Develop a Retrofit Communications Plan and Engagement Strategy to share learning, best practice, and opportunities, and to ensure that local residents are well informed and engaged.
- j) Play a leading role with its own estate, using public buildings and community centres as demonstrators to showcase and highlight the potential for retrofit whilst working with communities and community associations to help them unlock energy and carbon savings for community benefit.
- k) Consider reworking the HRA business plan in order to deliver retrofitting at pace.
- l) Consider implementing an internal carbon value, alongside Net Present Value (NPV) modelling, to assess and capture the carbon benefits and implications of retrofitting the council's housing stock.
- m) Explore alternative funding, for instance community municipal bonds and other mechanisms in line with previous scrutiny recommendations. A project should be developed to fund the retrofit of community spaces or similar, in the near future, to start to build understanding and public support.
- n) Work with private sector investors to utilise potential external funding opportunities, i.e. in large scale heat networks.
- o) Investigate the potential for additional funding and partnership working resulting from the forthcoming County Deal, as has been the case from Manchester and Leeds' respective devolution deals.

- p) Explore the concept of “comfort charges”, following the lead of other local authorities’ trials, as a potential source of additional funding.
- q) Ensure that any contract for delivering retrofit delivers social value too.
- r) Assess the existing skills provision and capacity in the local economy, in partnership with other local authorities.
- s) Work with relevant partners, including trade unions, to ensure equal opportunities for all, including skill development, job creation, and community involvement, in the council’s retrofit initiatives.
- t) Work with planning officers to use the National Planning Policy Framework to develop local supplementary planning documents to promote and enable retrofit, and to respond to the Future Homes Standard consultation.
- u) Thank officers and external contributors for their significant work informing and writing this report.

Policy framework

The council has five corporate priorities, which are:

- People live independently and well in a diverse and safe city.
- Norwich is a sustainable and healthy city.
- Norwich has the infrastructure and housing it needs to be a successful city.
- The city has an inclusive economy in which residents have equal opportunity to flourish.
- Norwich City Council is in good shape to serve the city.

This report meets all five corporate priorities and cuts across several Corporate Plan actions and priorities.

Report details

Executive summary

1. In June 2023, Norwich City Council's scrutiny committee directed a task and finish group to investigate and report on the measures the council could take to retrofit its own housing stock. The group met five times with the benefit of support from several officers and evidence from external bodies such as Leeds City Council and Flagship Housing Group. The following summary is high level and should be read in conjunction with the full report. The group notes that:

- a) The climate crisis is an escalating threat to life on earth and there is only a very short window of time to address it with measures to cut carbon emissions.
- b) Housing in the UK emits a fifth of its carbon due to the use of fossil fuels like gas and oil. Domestic emissions – which include housing – are the greatest source of emissions in Norwich, higher than both industry and transport.
- c) The cost of energy has doubled over the past two years, causing widespread fuel poverty.
- d) Retrofit contributes to alleviating fuel poverty through making homes more energy efficient, whilst also reducing greenhouse gas emissions. However, nationally, the rate of retrofit is not sufficient to meet existing targets.
- e) Retrofitting can contribute substantially to local economic development and rejuvenation, offering significant economic and social opportunity within the local areas.
- f) Norwich City Council has a commitment to ensure its housing stock reaches Energy Performance Certificate (EPC) level C as soon as possible and by 2030 at the latest. There's also a commitment to deliver a roadmap by 2024, setting out how the council's homes will reach net-zero carbon emissions as soon as possible and by 2050 at the latest.
- g) To meet these targets, the council will need to undertake significant energy efficiency work on its 14.5k properties. Successful retrofit projects have already been carried out, however efforts will need to significantly ramp up for these targets to be achieved. At present, £290m has been allocated as part of the HRA business plan for retrofitting over the next 30 years.
- h) The set of recommendations at the end of this report are presented to scrutiny for consideration, prior to being presented to cabinet for approval and action.

The global and local environmental context

2. Climate change poses a significant threat to human well-being and planetary health. There is an urgent need to act swiftly in order to secure a sustainable and habitable future for all. Approximately 3.3 to 3.6 billion people worldwide live in contexts that are highly vulnerable to climate change.
3. All global carbon reduction pathways that limit warming to 1.5–2°C, as outlined in the 2015 Paris Agreement – to which the UK Government is a signatory – involve rapid and deep and, in most cases, immediate greenhouse gas emissions reductions across all sectors.
4. Exceeding the target global temperature increase of 1.5°C to 2°C will lead to adverse consequences such as heat stress, migration, increased rainfall and flooding, accelerated sea level rise, and biodiversity loss.
5. Acknowledging the imperative for action, Norwich City Council has set an ambitious target for the city to reach net-zero by 2045, encompassing all sectors of the economy. This is earlier than the UK Government's 2050 net-zero target.
6. A major source of emissions in the UK is housing, with approximately 22% of national carbon emissions coming from providing heat and electricity to its homes¹. It's therefore clear that if Norwich is to meet its net-zero commitments, addressing domestic emissions is an absolute priority, especially for the housing sector as it is lagging behind.
7. As well as emitting carbon, the fossil fuel energy market has become unstable due to global factors. The average UK energy bill is double what it was two years ago. British homes were the worst hit by the crisis in western Europe last year due to the high dependency on gas. This is causing a home heating crisis and widespread fuel poverty. Six million households are living in fuel poverty as we head into winter.²

What is retrofit?

8. Retrofit, in the context of this report, refers to the process of making significant improvements or upgrades to an existing building, typically with the primary goal of reducing energy use and emissions but with the additional co-benefits of helping keep the house warm, enhancing indoor air quality and, if done right, reducing energy bills. Typical retrofitting measures can include air source heat pumps, ground source heat pumps, solar panels, battery storage and extra insulation. Insulation could range from

¹ [What's the link between net zero and homes? - Energy Saving Trust](#)

² [Annual fuel poverty statistics report: 2022 - GOV.UK \(www.gov.uk\)](#)

relatively minor measures, such as loft insulation, to more comprehensive measures, such as external wall insulation.³

9. The social, economic and environmental opportunities of retrofitting include:

- a) Reducing greenhouse gas emissions to net-zero;
- b) Improving socio-economic conditions and outcomes by providing energy sufficiency and reducing occupants' energy bills;
- c) Ensuring healthy living conditions and outcomes by providing thermal comfort and avoiding damp and mould;
- d) Ensuring safety and compliance;
- e) Bringing a refreshed sense of place to older housing developments;
- f) Improving biodiversity and access to nature;
- g) Improving asset value and lifespan;
- h) Developing retrofit delivery market capacity and capability including training and economic development and
- i) Adapting homes to better cope with the impacts of climate change.

10. The *potential* constraints and risks relating to retrofitting, if projects are not managed properly, are:

- a) Project affordability – retrofitting is capital intensive and so where limited resources exist, it competes with available capital for new-build projects;
- b) Worsening of fuel poverty – some approaches to retrofitting may reduce greenhouse gas emissions but increase energy costs to tenants;
- c) Unintended outcomes – making significant changes to the fabric and energy systems of buildings can cause damage to building elements if risks aren't managed properly;
- d) Loss of heritage value – retrofitting can affect the significant characteristics of heritage buildings if poorly managed;
- e) Poor engagement with tenants – if tenants fail to receive good quality information and support during the retrofit process, positive outcomes will be minimised.
- f) Workforce constraints – given the scale of the challenge and the volume of work that will need to be undertaken, the availability and skill of the existing workforce in relation to retrofit might act as a constraint.

11. The new PAS2035:2015 standard has been developed to mitigate these

³ Where to meet on heat? A conceptual framework for optimising demand reduction and decarbonised heat supply. Rosenow, Samuels www.elsevier.com/locate/erss

risks in retrofit projects. Introduced as a result of the Each Home Counts review, PAS2035 provides guidelines for assessing dwellings for retrofit, selecting the right energy efficiency improvements, designing and specifying those measures, and monitoring the impact/effectiveness of projects. Compliance with PAS 2035 is mandatory for all publicly funded retrofit projects, including the Energy Company Obligation, Social Housing Decarbonisation Fund, and Sustainable Warmth competition. This essentially means that any government-funded retrofit scheme must be undertaken with accredited retrofit assessors, coordinators and installers working on the projects. The Environmental Strategy Team have completed the accredited Retrofit Coordination and Risk Management course aligned to the PAS2035 standard, allowing the integration of the standard into council plans. More information about PAS2035 can be found here: <https://retrofitacademy.org/knowledge/pas-2035/>

12. There is an ongoing debate surrounding housing retrofitting versus demolition and new construction revolves around a trade-off between carbon cost-effectiveness and long-term financial considerations. Retrofitting existing housing can be more sustainable as it preserves the embodied carbon in the existing structures. However, there may be limitations to the level of energy efficiency that can be achieved on older properties. Demolishing and building new, energy-efficient dwellings can offer superior long-term energy efficiency, but the demolition and construction process can entail a substantial carbon footprint. It is *usually* the case that whole life carbon emissions are lower for retaining and retrofitting buildings than demolishing and building anew. The financial cost varies due to an array of factors, but most importantly the existing condition of the dwelling. Retrofitting is likely to be more cost-effective in the short term, whilst new construction will likely yield longer-term financial benefits, particularly on older stock – as long as replacement dwellings are built to a high energy efficiency standard. Ultimately, the choice between retrofitting and new construction should be based on a careful evaluation of the environmental, financial, and social factors specific to each dwelling. The potential impacts and disruption on residents and local communities will always be a key factor in decision making.
13. The most common and established method of measuring a properties energy efficiency is by EPC (Energy Performance Certificate). EPCs tell you how energy efficient a building is and give it a rating from A (very efficient) to G (inefficient). The methodology that underpins EPC data is continually updated, and so they are prone to change, but takes into account various factors such as the buildings fabric, construction type, appliances, and heating source. It is by EPC that all government funding is prioritised, and thus it will be EPC data that informs the Council's emerging Retrofit Strategy as set out in paragraph 44. However, it is worth noting that EPCs aren't without their criticism; the most notable in this context being that their underpinning methodology currently prioritises cost-efficiency over carbon

reduction based on outdated assumptions. Nevertheless, they still remain the best option for assessing and prioritising retrofit opportunities, with scheduled updates to the methodology likely improving their usefulness.

Central government policy and legislation relating to retrofitting

14. The UK has legally binding targets to reach net zero for 100% of national emissions by 2050 with an interim target to reduce emissions by 78% by 2035. There is no specific legal obligation placed upon local authorities or registered housing providers to meet these targets, but it will be impossible to meet them without housing playing a part.

15. The Climate Change Committee's (CCC) latest Progress Report (2023) stressed that there is currently a lack of urgency at the national political level, and that immediate action is needed in a range of areas to deliver on the Government's emissions pathways.⁴ Among the CCC's recommendations to Government were the following related to retrofit and energy efficiency:

- *“[Finalise] and [implement] plans to require privately rented homes in England and Wales to reach EPC C by 2028”*
- *“Finalise and ensure the timely implementation of plans to prohibit fossil fuel boiler replacements in off-gas grid buildings from 2026 (2024 for large non-residential buildings).”*
- *“Confirm the proposed regulatory mechanism for phasing out fossil fuel boilers, and clarify whether the required powers are devolved or reserved.”*
- *“publicly [affirm] that electrical heat is the default option in all new buildings and existing properties off the gas grid; prohibiting connections to the gas grid for new buildings from 2025”*

16. Following recent government announcements, namely the decision to scrap requirements for all rental properties to have an EPC rating of C, the legislative imperative for improving Norwich City Council's housing stock remains unclear. The Department for Levelling Up, Housing and Communities (DLUHC) plan to launch a consultation on Minimum Energy Efficiency Standards for the social housing sector in early 2024. The consultation is expected to outline future plans and establish potential EPC targets.

Norwich City Council existing environmental strategy and commitments

17. The council's current commitments in relation to retrofit are set out in the Environmental Strategy 2020-2025, summarised by Priority 4 which sets out to “increase the energy efficiency of all the housing stock in the city”. On

⁴ <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/>

a more granular level, the policy commits to:

- “Increasing energy efficiency in council-owned property”
- “Promotion of domestic energy efficiency”

18. The December 2022 HRA Business Plan Cabinet Report sets out a commitment to ensure Norwich City Council homes reach Energy Performance Certificate (EPC) level C as soon as possible and by 2030 at the latest. There’s also a commitment to deliver a roadmap by 2024, setting out how the council’s homes will reach net-zero carbon emissions as soon as possible and by 2050 at the latest. The 2050 net-zero target ultimately means that no dwellings are using gas for heating or appliances by this date.

19. As part of this Cabinet report, £53m to improve energy efficiency and install carbon reduction measures is included within the 5-year investment programme (2023/28). This work is crucial in making homes warmer and more affordable for the council’s tenants. The focus will be on a methodology that delivers the greatest affordable degree of benefit, depending on the existing characteristics of an individual dwelling. This is explored further in paragraphs 40-44.

20. The Council’s current estimation is that an investment of approximately £290m is available to meet EPC level C by 2030 and reach net-zero carbon emissions by 2050. This sum is included in the HRA Business Plan. Further development work is required to estimate the full cost of reaching the aforementioned targets, however early estimates suggest that £290m will not be sufficient.

Existing local partnerships concerned with retrofitting

21. The two primary local partnerships in Norwich (and Norfolk) dedicated to retrofitting are the Norfolk Climate Change Partnership and the Norfolk Warm Homes Partnership. Other groups in Norwich that deserve a mention undertaking retrofit or energy efficiency adjacent work – focused mainly on engagement rather than delivery – include Norwich for Warm Homes and the Norwich Climate Commission.

22. The Norfolk Climate Change Partnership (NCCP) comprises of all eight local authorities, as well as other key organisations such as the Tyndall Centre for Climate Change Research, the East of England Local Government Association, and the Greater South East Net Zero Hub. The NCCP recently agreed its three core priorities – determined by both lead officers and portfolio holders – one of which focuses on building retrofit. The NCCP has recently appointed a Partnership Manager who will be responsible for initiating and managing projects to advance the partnership’s objectives. More information about the NCCP can be found on

their website here: <https://www.norfolkclimatechange.co.uk/>

23. Additionally, the Norfolk Climate Change Partnership – on behalf of all Norfolk local authorities – has secured funding from Innovate UK’s Fast Followers programme to investigate the non-technical barriers to achieving net-zero. While project details are still being finalised, there will be a significant focus on the non-technical barriers to domestic retrofit, particularly the “able-to-pay” market. Non-technical barriers might include things such as finance, planning, bureaucracy, knowledge and trust, etc.
24. The Norfolk Warm Homes Partnership (NWHP) operates at a similar level and includes all Norfolk local authorities, with the exception of Great Yarmouth Borough Council. The Partnership is formally hosted by Broadland and South Norfolk councils, who employ dedicated officers to manage its operations and delivery. Its primary role is to bid for and deliver central-government retrofit funding on behalf of the wider Norfolk local authorities, essentially acting as a consortium. Whilst Norwich City Council previously managed the delivery of its Sustainable Warmth Competition/LAD funding internally, the NWHP are currently delivering HUG2 funding on its behalf. More information about the Norfolk Warm Homes Partnership can be found on their website here: <https://norfolkwarmhomes.org.uk/>
25. It’s also worth noting that Norfolk County Council are currently undertaking a piece of work to understand the county’s retrofit workforce and skillset. They’ve recently commissioned a consultancy to conduct an analysis of the skills requirement for Norfolk, and are also working with the Retrofit Academy to get training provision within Norfolk.

Norwich City Council housing stock – metrics and characteristics

Stock Condition Surveys

26. Norwich City Council Property Services is presently carrying out Stock Condition Surveys of its properties. Stock condition surveys are assessments conducted on properties within its housing portfolio. These surveys allow the council to evaluate the overall condition of each property, identifying any repairs or upgrades that may be required. The surveys collect detailed data on the state of critical building components including roofs, windows, doors, kitchens, bathrooms, and heating systems. This data enables us to prioritise maintenance activities and capital investments.
27. The council owns circa 14,200 homes, on top of circa 3,300 leasehold properties. A breakdown of these, in terms of property type, is summarised in the table below.

	Bungalow	Flat	House	Maisonette	Total
Council	866	7,004	5,838	463	14,171
Leased Out	1	8	29	7	45
Leasehold	0	3,033	28	283	3,344
(blank)	0	9	67	0	76
Total	867	10,054	5,962	753	17,636

28. Good progress has been made on the stock condition surveys over the last year. Property Services has now surveyed 5,524 domestic assets (38% of whole stock) and 1,895 blocks⁵ of the 2,298 target (82% of blocks) of the properties within the housing portfolio. The data collected so far has been very valuable, allowing the council to gain a clearer picture of repair and investment needs across the portfolio. However, the council is still validating data and inputting the results in the asset management database. This will take some time and the council will be approaching the consultants carrying out the surveys to ascertain if they can assist further with the analysis to increase the pace of this requirement. The council is on track to complete surveys on the remaining properties by the end of this fiscal year, at which point data will be available for analysis. The full dataset will enable the council to develop a comprehensive long-term asset management strategy. It will ensure the council is taking a proactive, data-driven approach to maintaining and enhancing its properties over the coming years.

29. While the survey process requires significant effort, it is a crucial exercise that will pay dividends through more strategic, cost-effective asset management. Property Services look forward to completing the exercise and using the insights to continue enhancing the council's housing stock.

Net Present Value (NPV)

30. Property Services are exploring the wider use of a net present value (NPV) exercise. When considering investments in council housing properties, a net present value analysis is extremely useful. It allows a proper evaluation of the financial viability of potential projects such as renovations, repairs, or acquiring new council housing properties. This exercise will allow Property Services to RAG rate (Red, Amber, Green: coding status for project status) properties to understand their ongoing viability.

31. Some key inputs and factors considered in the NPV analysis of council housing investments include:

- a) Upfront capital costs - Construction, materials, labour, acquisition fees etc.

⁵ "Blocks" in this sense refers to the structure where multiple dwellings might form a single block, i.e. a tower block or set of low-rise multi-floor flats.

- b) Ongoing maintenance and operating costs over the lifetime of the property
 - c) Projected rental income based on current and expected future rents.
 - d) Occupancy rates and any assumptions on vacancy periods
 - e) The usable lifetime of the property with proper maintenance
 - f) Applicable discount rates based on council's cost of capital.
 - g) Project risks and uncertainties such as higher costs or rental changes
32. Current NPV calculations do not cover the cost of carbon, and it is recommended that another metric, such as an internal carbon price, is used alongside, to help determine where investment is best directed for emissions reduction purposes. A sensitivity analysis which includes carbon cost and running costs for occupants needs to be factored in to plans.
33. By projecting the net cash flows from rental income minus the costs and applying an appropriate discount rate, we can determine whether the investment in council housing has a positive NPV that exceeds the hurdle rate, indicating it is financially worthwhile. Comparing NPVs of different projects allows us to recommend allocating limited capital budgets to the most value-adding council housing investments. We are targeting Q1 2024/25 for the identification and procurement of this activity.
34. When discussing the Council's housing stock in the context of retrofitting, it is important to acknowledge complexity involved around planning. The Council owns a uniquely diverse range of dwelling archetypes, each presenting distinct retrofitting requirements and (im)possibilities. Furthermore, within these archetypes, individual properties have varying conditions/characteristics which affect their retrofit starting point. Consequently, understanding what specific work is required on properties requires specific assessments, and one-size-fits-all strategies are only useful as a starting point. It is worth mentioning that this will work will require an increase in workforce capacity, which is likely to be brought in externally. This is currently the status quo due to the technical/specific knowledge involved.
35. It is worth noting that major programmes of work dealing with significant societal and economic changes have been successfully undertaken before, from toilets coming into houses to gas central heating being installed, this is just the latest (significant) challenge.

Norwich City Council retrofit funding and projects

36. Over the past two years the Environmental Strategy Team has delivered several retrofit schemes funded by central government. These include:
- a) Social Housing Decarbonisation Fund (SHDF) Wave 1: via the SHDF, External Wall Insulation (EWI) has been installed on 41 council-owned

properties. EWI will significantly reduce heat loss in these dwellings, enhancing thermal comfort and reducing the energy required for heating.

- b) Sustainable Warmth Competition (SWC): via the SWC, 289 different measures have been installed on a total of 252 dwellings. These are all low-income, owner-occupied properties, in line with the requirements of the scheme. The measures installed included varying degrees of insulation, solar PV systems, and/or air source heat pumps, depending on each dwelling's requirements.
 - c) Public Sector Decarbonisation Scheme (PSDS) – via the PSDS, the Environmental Strategy Team delivered a £650k project to install an air source heat pump on City Hall, providing the building with low-carbon heating. Whilst this is clearly not a *domestic* retrofit project, it nonetheless provides valuable learning opportunities for projects on large and/or historically sensitive buildings.
37. The Norfolk Warm Homes Partnership, on behalf of all Norfolk local authorities, has also recently successfully secured Home Upgrade Grant 2 (HUG2) funding. HUG2 focuses on heating and insulation upgrades for low-income households that are not connected to the gas grid. Again, the funding requirements of this scheme mean that only owner-occupiers are eligible. The Council's estimate suggests that around 100 households in Norwich meet these eligibility requirements.
38. The Council's bid for Social Housing Decarbonisation Fund Wave 2 was unfortunately unsuccessful, due to the competitive nature of these schemes. However the Department for Energy Security and Net Zero (DESNZ) have recently reopened the scheme under the guise of a wave 2.2. The Environmental Strategy Team, in conjunction with housing, are currently preparing a bid for wave 2.2. Whilst the details are still being confirmed this will again likely focus on EWI, loft insulation and improved ventilation for approximately 200 of the council's worst performing properties. The application deadline is the week commencing 15th January 2024.
39. Norwich has also been chosen as one of 28 cities included in a Department for Energy Security and Net Zero (DESNZ) funded study to identify the potential for heat networks and heat network zoning. Heat networks are centralised systems that distribute heat from a single source to multiple buildings, providing an efficient and sustainable way to supply heating and hot water. The Government is committed to introducing heat network zoning in England by 2025, though what this will actually look like is still unknown. However, it is expected that public buildings, large non-domestic and all new buildings should be connected to a heat network if within a heat network zone. Heat networks are a highly efficient and cost-

effective way of providing sustainable heating, and will be a significant step-forwards in helping Norwich reach net-zero. We're currently awaiting the findings from the DESNZ study and will be identifying next steps to help facilitate this work.

40. It's also important to note that, while not tied to any specific project or funding stream, the council has improved the energy efficiency of its stock over time. Such improvements include window and door upgrades, heating system upgrades and solar PV installations. However, as is established throughout this report, efforts will need to be massively and significantly ramped up to ensure that energy efficiency targets are met. Any heating system upgrade that is not electric will hamper net-zero by the time the electricity system is fully decarbonised (possibly as early as 2030).

Norwich City Council retrofit strategy development

Property Services and council-owned housing

41. As mentioned previously, the council has been improving the energy efficiency of its housing stock for many years. During 2022, the council commissioned the specialist consultants Delta Simons, to undertake a study of its housing stock with regards to developing a pathway to net-zero. Using data provided by the council, the Delta Simons study found that 87% of dwellings have had significant energy efficiency works completed, typically loft and cavity wall insulation (where cavity walls exist), double glazing and draft-proofing, finding that virtually all dwellings had efficient condensing gas boilers.
42. The study estimated the cost of applying solar PV and heat pumps to dwellings, as well as the cost of a 'deep-retrofit programme' to consider the feasibility of taking dwellings to EPC bands higher than C. The purpose of generating this information is to inform an options analysis and feasibility study for developing a comprehensive retrofit strategy for the housing stock. Further work was commissioned from the consultants Small World Consulting in 2023, to develop a cost model for estimating the cost of applying renewable energy and energy efficiency measures to the housing stock. These works, as well as the training of officers in the PAS 2035:2019 standard, gave important insight into the application of this standard in the retrofit programme.
43. A thermographic study of the housing stock was also undertaken over the winter of 2022/23 to understand the durability and extent of existing energy efficiency interventions, and where these might need to be replaced or added to.
44. Taking information from these studies and the SHDF project, whilst also considering the council's adopted Sustainable Warmth Strategy, the following main tenets of a retrofit strategy have been established:
 - a) Retrofitting must always bring about a reduction in energy cost to help alleviate fuel poverty – Retrofit activity must not increase the cost of energy for tenants, as may in some cases be the case when replacing a

condensing gas boiler with a heat pump without also improving the energy efficiency of the dwelling, while electricity prices remain triple the price of gas. If electricity costs are reduced through the Government's Review of Electricity Market Arrangement proposals, then the running cost of heat pumps will fall significantly.

- b) Measure Prioritisation – The basis of the evolving retrofit strategy is to achieve an EPC band C across the housing stock and then apply renewable energy (i.e. heat pumps) for heating. The preferred methods of improving EPC ratings are improving the energy efficiency of the building's fabric by increased insulation and the installation of solar PV systems. The rationale of this strategy is to get the building's fabric to a stage where a heat pump is viable and cost-effective for tenants. For dwellings that are already at EPC C, it may still be necessary to further increase the EPC rating, so that the installation of heat pumps does not increase the cost of energy to tenants.
- c) Renewable heating – The evolving technology strategy for decarbonising heat is to apply air source heat pumps to detached, semi-detached and terraced dwellings and ground source heat pumps to dwellings in blocks. This will be the case where low carbon district heating systems do not exist. Where the local electricity network is insufficient for supporting the widespread adoption of heat pumps, and cannot be made more sufficient, then a greater emphasis shall be placed on fabric efficiency improvements to further reduce the need for heating energy. A Local Area Energy Plan (LAEP) is required to understand this in more detail. A LAEP sets out the change required to transition an area's energy system to Net Zero in a given timeframe. This is achieved by exploring potential pathways that consider a range of technologies and scenarios, and when combined with stakeholder engagement leads to the identification of the most cost-effective preferred pathway and a sequenced plan of proposed actions to achieving an area's Net Zero goal⁶. It is important to stress that any heating system still based on gas by 2050 means residual emissions.
- d) Compliance with PAS2035:2019 – Retrofitting must comply with the PAS2035:2019 standard and thus follow the 'whole house' approach, ensuring that works are planned and sequenced in a cost-efficient way. This approach brings about the most successful outcomes and greatest cost efficiency when delivering projects.
- e) Quality assurance of previous works – When planning the installation of retrofit measures, the quality of existing previous works, such as cavity wall insulation, must be inspected to ensure that it's still delivering the expected performance. Any issues where measures are found to be under-performing should be remedied.
- f) The use of EPC data – EPC data is being used throughout the retrofit industry as the basis for decision making and to measure retrofit outcomes. EPC data can be subjective to some degree depending on the opinions and practices of each individual EPC assessor. As part of the evolving retrofit programme, the council will review its existing EPC

⁶ [Local Area Energy Planning - Energy Systems Catapult](#)

data to ensure accuracy, consistency and to make sure it is targeting funding effectively, based on evidenced need. EPC data will be used to prioritise dwellings for work, so that the least energy efficient homes are prioritised. While EPCs are currently the most appropriate option decision-making, it is important to recognise their downsides, as highlighted in paragraph 12.

45. The studies completed to date provide the means to develop a comprehensive retrofit strategy for the housing stock. Work will continue over the winter of 2023/24 towards a consultation on a draft strategy document in 2024, which will set out how the works and identified funding will be sequenced.

Lion Homes Ltd

46. The scale of the retrofit challenge – for both Norwich City Council stock and the city more widely – poses a significant business opportunity; it's likely that the total value of the work will be in the *billions* of pounds. Questions remain whether there is a business opportunity for Norwich City Council – or its existing subsidiary companies – to capitalise on this opportunity.
47. Within their approved Business Plan, council subsidiary company Lion Homes Ltd are clear that their primary focus is building new homes. They are committed to delivering key strategies highlighted in that business plan which would enable the company to move into a growth phase. The key strategies are (1) Investment Strategy; (2) People Strategy; (3) Sales, Marketing & Branding Strategy; (4) Delivery Strategy.
48. The people strategy and delivery strategy are key and only by progressing these would the company be able to grow which in turn would potentially then allow the company to expand and develop new business development opportunities; such as investigating the possibility of a sub-division that delivers retrofit contracts.
49. The vision of the current team is that Lion Homes could move into the retrofit space, this is due in part to developing a better understanding of the building service package, further developing the city council's requirements as shareholder on new developments coming forward in 2024 (the company's renewable specification) and learnings and collaboration with the NCC asset team on handover of properties at Threescore.
50. Lion Homes currently has not engaged in any discussions with Norwich City Council (the shareholder) about taking forward new business opportunities other than delivering its core function which is to build new homes.
51. Lion Homes have undertaken a significant amount of resident and public engagement through their social obligations that are outlined in the approved business plan. They've delivered some excellent results in 6 local schools, working with partners to deliver learning content on the theme of sustainability, starting the conversation on next generation professionals, as well as engagement with parents and guardians on energy use in the home. This then potentially could open up private sector retrofit opportunities and funding.

52. In Q4, Lion Homes will be taking time to reflect and revisit the best way in which to engage and educate 'end users' on the build form and performance to ultimately minimise energy use. Linked to their handover review in Q4, Lion Homes are in process of analysing data from energy performance monitoring of their private rented stock. This assessment will create an understanding of the end users' energy consumption (actuals) compared to that of the predicted usage when the homes were designed.

Retrofit strategies and programmes of other LAs

53. Over the course of the Retrofit Task and Finish Group meetings, the work of other local authorities has been highlighted and discussed. The group received presentations and a Q&A session with representatives from Flagship Housing and Leeds City Council. The below points summarise what has been learnt from these sessions, as well as other successful initiatives from other local authorities.

Flagship Housing Group

54. The main driver of Flagship's retrofitting work was the requirement to meet net-zero by 2050, and for all properties to have an EPC rating of C or above by 2030. Flagship highlighted how addressing these goals had not only an environmental imperative, but was also underpinned by the need to provide their tenants with a better living experience by ensuring warm, damp-free homes and lower energy bills.

55. Over the past six years, Flagship has successfully installed approximately 2,500 air source heat pumps and 200 ground source heat pump systems in their properties. For this work, their primary focus has been on homes with two or more bedrooms, and heating systems powered by night storage, oil, or solid fuel, as these were considered priority candidates for retrofitting. Properties smaller than this were not usually deemed suitable due to the size of the radiators needed, although other technologies were coming to the market. This work was undertaken so that homes with an EPC of a D or below were prioritised. All EPC ratings – and subsequent work – was stored/inputted accurately into their central asset management system. This meant that works could be coordinated, for instance installing solar PV at the same time that roof maintenance was being carried out.

56. To undertake this work, Flagship has an in-house retrofitting team which includes one internal and two external co-ordinators, as well as administrative support for the team. The use of external coordinators helped manage the peaks and troughs inherent in retrofit work/funding.

57. One of the most significant challenges Flagship faced in their retrofitting efforts was tenant reluctance to have work done in their homes; this is something that Norwich City Council has also encountered when managing

larger retrofit projects. Factors that Flagship attributed this reluctance to included tenant age and a general aversion to property alterations. To overcome this barrier, Flagship employed two tenant engagement officers, who worked closely with tenants to address concerns and remove obstacles. This included arranging furniture moves and lifting carpets. The personalized approach played a crucial role in reducing refusal rates. Flagship also undertook post-installation monitoring and evaluation to address any additional issues and concerns raised by tenants. Flagship is also participating with the University of Oxford on the SHIFT-0 study which is looking at tenant behaviour when heat pumps are installed, in order to better understand what information tenants need post-installation. This study could provide valuable lessons.

58. Additionally, concerns about the running costs of air source heat pumps were mitigated by the simultaneous installation of solar PV panels, enhancing the overall energy efficiency of the properties and helping tenants manage their energy costs more effectively. This approach not only overcame the aforementioned barriers but also further reduced the emissions of Flagship's housing stock.

Leeds City Council

59. Leeds City Council has undertaken a significant programme of work across their own housing stock (circa 52k properties), utilising various funding streams to complete a wide range of projects. Of particular note are two standout projects in Holbeck and Holtdales.

- a) Holbeck is situated in the country's 1% most deprived neighbourhoods, facing significant social challenges and experiencing highly inefficient housing. Utilising different funding streams, the council invested approximately £10 million in 300 terraced homes, primarily focusing on enhancing the building fabric. This involved the installation of roof, loft, and external wall insulation. The resulting energy efficiency improvements are estimated to save residents over £600 annually on energy bills, concurrently reducing CO₂ emissions by 85 tonnes per home over the dwelling's lifetime.
- b) On Leeds' Holtdales estate, 190 low-rise flats have been retrofitted combining funding from the council (£5.62m) and the former Department for Business, Energy and Industrial Strategy (£4.18m). The dwellings received a comprehensive retrofit, with air source heat pumps, solar PV, improved ventilation and external wall insulation installed across the properties. It's estimated that this project has cut bills by up to 70%, with some households now generating more energy than they use.

60. Leeds' proactive approach to retrofit is aided by their significant staff resources. In the equivalent of their Environmental Strategy Team, there are

5.5 Full-Time Equivalents (FTEs) dedicated solely to working on initiatives related to retrofit, affordable warmth and domestic energy. Leeds estimate that a *further* 15-20 FTEs across the council work on retrofit as and when required; for instance, all capital investment in their council-owned housing stock is overseen by their Housing Leeds teams, alongside significant involvement in projects from private sector housing, procurement, internal quantity surveyors, etc.

Other Notable Examples

61. Thurrock District Council partnered with heat pump company Kensa to install a shared ground source heat pump array across 3 high-rise tower blocks, covering 273 individual properties, to replace the existing night storage heaters. It's estimated that fuel bills have reduced by up to 50% for some households due the improvements in efficiency compared to the previous heating systems. To fund this project, Thurrock secured £3.2m from the Governments SHDF Wave 1, with the total cost of the project approximately £5m. The project's success in implementing a shared ground loop array system showcases the immense potential of ground source heat pumps in rapidly and cost-effectively decarbonizing multiple properties on a significant scale.

62. Manchester City Council has spent £83m to date on energy improvements to council properties since 2005 leading to a 49% reduction in CO2 in the homes that have received investment. In parallel, 2,100 Residents received energy advice since 2013, saving them an estimated £370k and 500 tonnes of CO2. Investment in the Manchester City Council's own stock to date includes:

- 1,600 solid wall properties – external render and insulation (inc. 50 private properties)
- 14 high rise blocks of flats – external render and insulation
- 580 homes with heat pumps – high and low rise
- 2,350 roofs with solar photovoltaic (PV) systems
- 8 retirement blocks with solar thermal panels
- 300 blocks of flats with low energy lighting – high and low rise
- 11,000 homes with high efficiency condensing boilers
- 11,900 homes with double glazing
- 5,100 homes with cavity wall insulation
- 7,000 homes with loft top-up insulation

63. An innovative idea that other local authorities are beginning to explore (but not yet implement) is a “comfort charge” or Comfort Plan.⁷ This would be an additional payment from residents, tied to their rent, that would be payable if

⁷ [Energiesprong UK](#)

their home had received energy efficiency measures. The idea is that some of the savings accrued through reduced energy bills to the tenant are used to pay the charge, thus overall increasing funding for retrofitting. This would only be implemented to *new* tenants moving into properties. There are implications to such an idea that would need to be investigated further.

64. It's worth pointing out that Leeds and Manchester appear to have benefited significantly in financial terms from their respective devolution deals and the associated increased powers/funding. It is worth exploring the implications and potential opportunities of Norfolk's County Deal.

Findings and comments

65. The below points set out the key findings and comments from the Task and Finish Group meetings.

- a) The council's existing HRA budget commitments will not meet the full cost of retrofitting its housing stock to reach net-zero by 2050. Further analysis is required to understand more accurately what this shortfall will be. Significant external sources of funding will be required to meet targets, whether this is from central government or the private sector.
- b) There is a need for increased government funding with long-term certainty (opposed to the current nature of short-term funding bids), as well as policy support and stability for the retrofit sector.
- c) There is a need for quality engagement with residents to manage potential concerns about new technologies and ensure that the benefits of these are maximised. Work carried out by Lion Homes Ltd and Flagship Housing Group provide excellent examples. There is a role for the council not only as an educator itself, but as a convener of conversations so that peer-to-peer communication and learning is maximised. A key result of this would be that retrofitting becomes normalised.
- d) There is a need for an agreed evidence-based approach following recognised retrofit principles, ensuring that the greatest degree of benefit (in all respects, not just carbon emissions) is achieved as cost-effectively as possible.
- e) The council should learn from first adopters elsewhere who have already piloted and tested new technologies to understand what works well, what doesn't, and the potential impact on residents.
- f) There is a need for a citywide Local Area Energy Plan to ensure that the city has the capacity to reach net-zero, and to further understand what is required to achieve this.
- g) Currently, there is a need for increased capacity in supply chains and local skills across Norfolk. However, work is already being undertaken by the County Council on this, and the market will likely drive provision and training.

- h) There is a need for increased skills and capacity across the council to design, manage and deliver retrofit projects at scale. One of the key lessons from Leeds was that there is a need for understanding of and involvement in retrofit across the council. There is an acknowledgement that it is not the job of one team, but that it impacts all areas and thus needs widespread support and involvement.

Recommendations

66. Based on this substantial research, it is recommended that Scrutiny Committee recommends to Cabinet the following recommendations from the task and finish group:

It is recommended that Norwich City Council will:

- a. Recognise its key roles in essential decarbonisation, combatting fuel poverty and health and economic development, add retrofitting as a core and central theme to the new Corporate Plan.
- b. Develop a state of evidenced readiness for future funding to allow quality funding applications to be submitted efficiently for all available funding opportunities.
- c. Allocate sufficient resource to reach this state of readiness, enabling the council to plan strategically and to effectively manage projects, particularly in the housing team. Writing quality bids, planning strategically and managing the projects will take significant additional resource.
- d. Agree to monitor the effectiveness of the housing team restructure to ensure that the team includes the necessary skills and capacity to deliver retrofitting. Similarly, review the capacity of key support services in other teams within the council – e.g. procurement – to ensure an understanding and culture of retrofit.
- e. Offer ongoing training and advice, including site visits, to all councillors and staff in relation to retrofitting so that they can be a conduit for information to residents.
- f. Aspire and plan to deliver retrofit services through its own companies. Long term, contracts need to be written with this possibility in mind, and development and business planning undertaken to support this as an income stream. This entails exploring opportunities for new builds in collaboration with Lion Homes, assessing the feasibility and ambition for Lion Homes to offer retrofit services, and consequently identifying the necessary support the company will require for successful implementation.
- g. Examine Norwich City Services Limited (NCSL) opportunities and ambition for income generation related to retrofit, and develop an early stage plan in readiness.
- h. Use the knowledge and experience of work already undertaken by Lion Homes to understand resident behaviours and identify the most effective way of communicating with residents around retrofit, as well as using

research and experience from experts in this field.

- i. Develop a Retrofit Communications Plan and Engagement Strategy to share learning, best practice, and opportunities, and to ensure that local residents are well informed and engaged.
- j. Play a leading role with its own estate, using public buildings and community centres as demonstrators to showcase and highlight the potential for retrofit whilst working with communities and community associations to help them unlock energy and carbon savings for community benefit.
- k. Consider reworking the HRA business plan in order to deliver retrofitting at pace.
- l. Consider implementing an internal carbon value, alongside Net Present Value (NPV) modelling, to assess and capture the carbon benefits and implications of retrofitting the council's housing stock.
- m. Explore alternative funding, for instance community municipal bonds and other mechanisms in line with previous scrutiny recommendations. A project should be developed to fund the retrofit of community spaces or similar, in the near future, to start to build understanding and public support.
- n. Work with private sector investors to utilise potential external funding opportunities, i.e. in large scale heat networks.
- o. Investigate the potential for additional funding and partnership working resulting from the forthcoming County Deal, as has been the case from Manchester and Leeds' respective devolution deals.
- p. Explore the concept of "comfort charges", following the lead of other local authorities' trials, as a potential source of additional funding.
- q. Ensure that any contract for delivering retrofit delivers social value too.
- r. Assess the existing skills provision and capacity in the local economy, in partnership with other local authorities.
- s. Work with relevant partners, including trade unions, to ensure equal opportunities for all, including skill development, job creation, and community involvement, in the council's retrofit initiatives.
- t. Work with planning officers to use the National Planning Policy Framework to develop local supplementary planning documents to promote and enable retrofit, and to respond to the Future Homes Standard consultation.
- u. Thank officers and external contributors for their significant work informing and writing this report..

Consultation

67. This report was compiled following a series of Task and Finish group meetings comprising of members of the Scrutiny Committee with input from various Norwich City Council officers.

Councillors in attendance:

- Cllr Galvin (Chair)
- Cllr Osborn
- Cllr Stutely
- Cllr Driver
- Cllr Prinsley
- Cllr Ackroyd

Officers in attendance:

- Phil Hunt, Environmental Strategy Manager
- Ben Spratling, Environmental Strategy Officer
- Paul Cook, Interim Head of Building Safety and Compliance
- Brian Burton, Interim Head of Asset Management
- Alex Hand, Senior Committee Officer

External Contributors:

- George Munson, Leeds City Council
- Tabitha Organ and Phillippe Demougin, Flagship Housing Group

Implications

Financial and resources

68. Any decision to reduce or increase resources or alternatively increase income must be made within the context of the council's stated priorities, as set out in its Corporate Plan 2022-26 and budget.

69. There are no specific proposals or decisions associated with this report, but the findings and general recommendations carry significant financial and resource implications.

Legal

70. There are no direct legal implications as a result of this report.

Consideration	Details of any implications and proposed measures to address:
Equality and diversity	While there are no direct implications as a result of this report, providing safe, energy efficient and healthy housing has various social, economic and environmental implications.

Consideration	Details of any implications and proposed measures to address:
Health, social and economic impact	While there are no direct implications as a result of this report, providing safe, energy efficient and healthy housing has various social, economic and environmental implications.
Crime and disorder	While there are no direct implications as a result of this report, providing safe, energy efficient and healthy housing has various social, economic and environmental implications.
Children and adults safeguarding	While there are no direct implications as a result of this report, providing safe, energy efficient and healthy housing has various social, economic and environmental implications.
Environmental impact	<p>While there are no direct implications as a result of this report, providing safe, energy efficient and healthy housing has various social, economic and environmental implications.</p> <p>By improving the energy efficiency of the council's housing stock and decarbonising heating, there will be clear environmental benefits, as this report has highlighted.</p>

Risk management

Risk	Consequence	Controls required
There are no direct consequences as a result of this report, but failing to retrofit the council's housing stock does carry various environmental, legal, and social risks.	n/a	n/a

Other options considered

71. All the options explored are contained within this report.

Appendices: None

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