

Housing, Homelessness and Fair Work Committee

10.00am, Thursday, 5 November 2020

Housing Sustainability Update

Executive/routine	Executive
Wards	All
Council Commitments	1

1. Recommendations

- 1.1 It is recommended that Housing, Homelessness and Fair Work Committee notes:
 - 1.1.1 the work underway to develop an advanced whole house retrofit approach (based on the EnerPHit retrofit standard) across existing Council homes to support the delivery of the Council's net zero carbon commitment;
 - 1.1.2 the new build housing design guide will seek a holistic approach to achieving a net zero carbon outcome for all developments going forward; and
 - 1.1.3 the range of innovative energy programmes and projects underway such as the Decarbonisation Fund and Scottish Government Home Energy Efficiency Programme Scotland: Area Based Scheme (HEEPS:ABS) to reduce emissions, tenants' energy bills and tackle fuel poverty.

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Housing Sustainability Update

2. Executive Summary

- 2.1 The Council's commitment to achieving net zero carbon by 2030 has placed sustainability and climate change at the centre of strategic and policy discussions. It has also raised the profile of Edinburgh as one of the most ambitious cities seeking to tackle climate change to deliver a more sustainable and inclusive city.
- 2.2 In line with this new focus on sustainability a report on the Council's Housing Sustainability approach was brought to Housing, Homelessness and Fair Work Committee on [20 January 2020](#). It was agreed that an update report would be brought back to Committee in two cycles.
- 2.3 This report outlines the specific approaches to sustainability and net zero carbon that will be embedded across the Council's existing housing stock and new build housing, in line with the Council's 2030 net zero carbon commitment and the objectives of the Housing Revenue Account (HRA) Budget Strategy.
- 2.4 For the new build programme, the Council will be testing a new design brief to ensure all new homes meet net zero carbon. An advanced whole house retrofit (WHR) approach is being developed to bring existing homes up to the ambitious EnerPHit standard where practical. This will see existing homes brought up to a new build standard in terms of energy performance.

3. Background

- 3.1 On the [14 May 2019](#), the Corporate Policy and Strategy Committee approved the Council's Sustainability Approach, which included Edinburgh working towards a net zero carbon target by 2030, with a hard target of 2037. In response to this the Housing Service has commissioned two separate pieces of consultancy work on options to achieving net zero carbon across the Council's new build housing programme and the Council's existing stock.
- 3.2 On [20 January 2020](#), the Housing, Homelessness and Fair Work Committee approved the Housing Sustainability approach, which outlined the future approach to reducing emissions across existing homes and the new build housing programme.

- 3.3 On [20 February 2020](#), the Council approved the five-year HRA Budget Strategy 2020/21 to 2024/25. In addition to this, Council approved a draft 2020/21 capital budget, five-year capital investment programme and 30-year Business Plan.
- 3.4 On [27 August 2020](#), Finance and Resources Committee approved a revised 2020/21 HRA capital budget in light of the impacts of Covid-19. The HRA presented a 41% expected reduction in expenditure and committed to exploring opportunities to reallocate capital slippage to strategic land acquisition to support the new build programme.
- 3.5 On [25 October 2019](#), Policy and Sustainability Committee approved a Short Window Improvement Plan which set out immediate actions the Council could take to reduce its carbon footprint. This included actions to improve the energy efficiency of existing and new build Council housing.
- 3.6 On [23 July 2020](#), Policy and Sustainability Committee received an update on the Council's overall sustainability programme which included summary information in relation to the sustainable housing strategy described in more detail in this report. The sustainability programme update noted that a range of council plans, strategies and projects are being taken forward at service level and subject to scrutiny through relevant council committees, including the Housing Sustainability approach.

4. Main report

Carbon context - National and Edinburgh

- 4.1 The Scottish Government has produced an ambitious Energy Strategy, including a net zero carbon target by 2045. One of the cornerstones of this strategy is the Energy Efficient Scotland Programme (EES). EES sets long term domestic standards for the social rented, private rented and owner occupier sectors and proposes that all residential properties in Scotland will be required to achieve an Energy Performance Certificate (EPC) rating of at least EPC C by 2040 and for the social rented sector to achieve an EPC B by 2032. The Council by comparison has committed to achieving net zero carbon by 2030.
- 4.2 There are approximately 232,000 domestic properties in Edinburgh. Of these, 142,000 (61%) are owner occupied, 56,000 (24%) are private rented, 20,000 (9%) are Council homes and 15,000 (6%) are housing association homes. Domestic sector emissions account for 35% of Edinburgh's overall emissions. Council housing represents 8.6% of homes but only 5.3% of domestic sector emissions or 1.9% of Edinburgh's overall emissions. Higher standards as applied to social housing need to be applied across the wider domestic sector, with the right incentives in place, if carbon emissions are to fall as sharply as is required by 2030. This report focuses on the approach to delivering net zero carbon in Council homes and estates.

Council housing energy context

- 4.3 The Council is the largest housing landlord in the city with a tenant base that is generally more socio-economically deprived across a number of factors. As such, many Council tenants have more challenging needs which can be severely impacted by high energy costs and poor thermal comfort. There are also a number of building related complexities that have an impact on the Council's ability to improve the energy performance of its homes. These range from complex building archetypes and the age of properties to significant mixed tenure barriers.
- 4.4 Approximately 7,000 existing homes were constructed pre 1949 and are categorised as hard to treat, meaning they require significant fabric upgrades and investment to help reduce energy demand. 13% of Council homes can be categorised as low-rise non-traditional construction types and also present significant technical challenges when attempting energy retrofit works.
- 4.5 The mixed ownership patterns found across the Council's housing estate also present significant complexities in terms of gaining agreements from all homeowners in mixed tenure blocks to carry out upgrades. Approximately 50% of Council homes sit within a mixed tenure block and approximately 4,400 Council homes sit within either 50/50 or minority Council ownership blocks.
- 4.6 In terms of new build homes, the Council is committed to delivering 10,000 new affordable homes by 2027/28. New build housing presents an opportunity to get energy performance right first time. The additional CO2 emissions from all 10,000 new homes would only see an increase of +9% by 2030 of overall housing emissions, despite 50% more homes planned for construction with twice the floor area of the average existing home.

Current approach to energy efficiency

- 4.7 The Council's current approach to energy efficiency is guided by meeting the Energy Efficiency Standard for Social Housing (ESSH). This is being achieved through the installation of individual measures.
- 4.8 All Council homes will be required to meet ESSH2 by 2032. ESSH2 sets an aspirational target for homes to meet a minimum SAP score of 81 (Band B). This is a much more demanding target compared to ESSH, which requires a SAP score of 69 (Band C), which is already proving challenging. Meeting ESSH2 across all 20,000 homes will require a much greater level of investment (between £8k - £25k per home) and will be much more technically challenging, given that some of the easier individual insulation measures have already been installed in order to meet ESSH.
- 4.9 Around 85% of Council homes are currently on the gas grid. Electric heating is currently four times as costly as gas. However, electric heating technology is increasing in capacity whilst reducing in price and from an environmental perspective, gas heating is not sustainable. This is recognised in the fact that all new homes after 2024 will no longer be able to connect to the gas grid and will require the use of renewable or low carbon heating systems. All new Council homes in design development will not have gas boilers. A switch to electric for existing

homes needs to be carefully managed through a fabric first approach that significantly reduces overall energy demand and through targeted energy efficiency advice to help mitigate fuel poverty.

- 4.10 There are a number of limitations that need to be addressed with the current approach to energy retrofit across existing homes in order to align with the Council's wider commitment to achieve net zero carbon by 2030.
- 4.11 EESSH and EESSH2 standards are based on the EPC. The methodology for producing an EPC is limited. The calculation is based on standard assumptions and does not take into account how the building is operated in practice, resulting in a 'Performance Gap'. As a result, anticipated energy performance may not be realised, and the savings tenants might expect because of energy efficiency measures may not be achieved. In some cases, energy consumption can be as much as double what was expected.
- 4.12 The approach of incrementally layering individual measures without consideration of wider building and asset management considerations can result in either compromised future performance or a requirement for premature replacement. Greater alignment of energy efficiency with asset management is required to achieve a consistent approach for the improvement of homes.
- 4.13 All Council new build homes are currently built to a minimum 'Silver Standard Active' level and have a minimum energy efficiency rating of EPC B. Anderson Bell Christie were commissioned in 2019 to review the design brief for the Council's new build housing and to develop a blueprint for delivering energy efficient, affordable homes that require little energy for space heating or cooling and that also provide a way of achieving net zero carbon.

New Strategic Approach

- 4.14 Meeting the energy and low carbon standards demanded over the next decade will be challenging and expensive and will require a new approach. As such a new strategic approach is proposed which will champion advanced WHR to EnerPHit standard where practical across existing homes and net zero carbon across new build. It will be governed by three key drivers:
 - 4.14.1 **Fabric First** – Focusing on reducing demand through improved building fabric measures. For existing homes in particular fabric first will be achieved by developing a holistic advanced WHR approach that will aim to deliver EnerPHit (Passivhaus retrofit standard). All new build homes will be designed from the core principle of maximising thermal efficiency and therefore minimising heat demand. This key strategic driver will ensure that all homes will deliver health, comfort and affordability to tenants.
 - 4.14.2 **Energy supply** – For new build homes the focus will be on achieving net zero carbon and as such there will be an extensive roll out of low and zero carbon technologies (LZCT) across new build homes and in particular low carbon heating solutions. For existing homes, a risk-based approach to LZCT will be prioritised. The WHR approach will ensure that LZCT are given the best chance to work in the long term.

- 4.14.3 **Asset management** – long term maintenance issues will be future proofed by ensuring that asset management considerations and energy efficiency measures are strategically aligned at the design stage to achieve a consistent approach for the improvement of homes and to embed future maintenance savings. This will enable a proactive maintenance, repairs and adaptation service.
- 4.15 This new strategic approach will provide a holistic long-term solution centred on low carbon sustainable homes, the quality of life of tenants and the regeneration of our neighbourhoods and communities. This will align energy efficiency with asset management ensuring that energy efficiency and building improvement go hand in hand to design out future maintenance issues. This will ensure that the benefits of WHR and zero carbon new build homes are realised in terms of health, comfort and affordability to our tenants and through long-term maintenance savings to the Council. The phasing of the programme is equally important to ensure measures are not installed prematurely which could push tenants inadvertently into fuel poverty.
- 4.16 The above strategic approach also lends itself to a series of wider city-based outcomes beyond the direct benefits to tenants and the Council. The wider WHR programme has the potential to transform neighbourhoods through area-based regeneration and provide a range of environmental, social and economic opportunities due to the scale of investment that will be required to deliver this programme and the carbon reduction potential this could achieve. This investment (both Council homes and private owners in mixed tenure blocks) will support 15,600 person-years of employment across the 10-year period, which is equivalent to 1,560 permanent jobs. These wider outcomes support the objectives of the HRA Budget Strategy 2021/22 to deliver a holistic area-based approach that creates places where people want to live that keeps them safe, secure, healthy and connected.

Work already underway

- 4.17 Making homes easier and cheaper to heat has been the cornerstone of the HRA Budget Strategy and annual Capital Investment Programmes. Over half of Council homes have benefited from energy efficiency measures over the last five years (including 7,100 new heating systems; 2,900 homes insulated; and 1,600 homes fitted with new windows and front doors). Work continues towards meeting EESSH; currently 71% of homes have been brought up to standard and 86% were expected to be compliant by the end of 2020 (pre-Covid).
- 4.18 Over the last five years Edinburgh has benefited from £19.2m in funding through the HEEPS:ABS programme. This has delivered energy efficiency measures to c.6,760 homes (both Council and Private owners).
- 4.19 The HEEPS:ABS 2019/20 has now recommenced following a temporary pause as a result of Covid-19. The 2019/20 programme is set to deliver a total grant spend of £3m with an additional £1.4m leveraged in by the Council to support a range of energy efficiency improvements to 707 homes. The Council is now in receipt of this year's HEEPS:ABS 2020/21 grant offer which totals £4.06m, with an additional

£1.5m leveraged in by the Council. This programme will target 747 homes with a range of energy efficiency improvements.

- 4.20 The Decarbonisation Fund combined solar PV and battery storage pilot is currently being delivered in the Kirkliston area of the city and is on track to meet its target of 112 Council homes. The pilot will be extended to a further 65 private homes in the Kirkliston area as part of the HEEPS:ABS 2020/21 programme.
- 4.21 An in-depth study was progressed by Edinburgh Napier University to inform the Council's understanding of what retrofit standards could be applied across existing homes to best align with the Council's wider ambitions around net zero carbon. The EnerPHit standard was highlighted as the most appropriate retrofit standard to pursue due to the significant carbon savings that could be realised (87% reduction across existing Council homes). Importantly EnerPHit will enable the Council to meet and exceed EESSH2.
- 4.22 A collaborative partnership with Renfrewshire Council to procure a design team to produce bespoke design solutions is currently underway. This project seeks to pool resources and expertise to determine the most effective design principals to deliver WHR to meet both EESSH2 and other more ambitious standards such as EnerPHit. These design solutions will cover all of the Council's existing property types and building archetypes.
- 4.23 As part of its European-funded Healthy Clean Cities sustainability programme, the Council has been working with Edinburgh Centre for Carbon Innovation and the University of Edinburgh to develop a 'Carbon Scenario Tool' to support the city's 2030 net zero target.
- 4.24 Following the work undertaken by Anderson Bell Christie a design brief has been produced that will ensure all new build homes are designed to achieve net zero carbon. This will follow a fabric first approach, allowing the design and construction to be tailored to meet the requirements of the site and to select the most appropriate low carbon heating solution. Proof of concept for this new net zero carbon design brief will be tested at Western Villages.
- 4.25 The new build programme also aims to lead by example in terms of construction innovation including the use of modern methods of construction. The Council is working alongside a number of partner organisations (Scottish Government, Scottish Futures Trust, Construction Scotland Innovation Centre, Edinburgh Napier University, and Offsite Solutions Scotland) on a proposal which will develop net zero carbon housing through greater use of offsite construction. This Edinburgh Homes Demonstrator (EHD) project will test a new housing delivery model, specifically a method of design, construction and delivery that is based on off-site construction and disrupts the traditional linear delivery model of housing design and construction.
- 4.26 The Council will effectively be the client for the pilot construction project and will test the new business and procurement model. The EHD pilot will be based in Edinburgh but with an ambition to expand this across the City Region partners and their housing pipeline.

- 4.27 Sustainability and low carbon design will also be embedded across all developments to complement the fabric first design guide for homes. This will include (as a default) low/minimum parking, active travel prioritisation, biodiversity enhancements and climate adaptation via advanced sustainable urban drainage (SUD)'s schemes. The sustainability commitments sit within the context of the HRA Budget Strategy 2021/22 which is focused on delivering a holistic area-based approach that creates places where people want to live that keeps them safe, secure, healthy and connected. This is detailed in a separate report to this Committee.
- 4.28 This new design guide ensures that new build housing is aligned with future statutory regulations. This includes pre-empting the 2024 deadline which will stop new build housing from connecting to the gas grid. The new build design guidance allows for flexibility in the net zero carbon approach which currently allows for some offset, this will be reviewed as future and more stringent changes to the Building Regulations come into force to ensure continued alignment.

Roadmap to Net Zero Carbon by 2030

- 4.29 Over the next two years the following workstreams will be taken forward to inform the development of a net zero carbon strategy for Council homes: including:
- 4.29.1 **Structural integrity, condition and architectural layout surveys** across existing home archetypes to be commissioned by Spring 2021 to identify which blocks are investment ready. Blocks where there is already 100% Council ownership will be prioritised providing the structural and conditions surveys are favourable. This Council's acquisitions and disposals strategy is enabling the Council to consolidate ownership in blocks. This work will continue in 2020/21 alongside engagement with owners to deliver repairs and improvements in mixed tenure blocks.
- 4.29.2 **Design principles established for all building archetypes** by Summer 2021 – revealing what level of WHR can be reasonably achieved and the true costs of these WHR interventions in existing homes.
- 4.29.3 **EnerPHit pilot projects** - four pilot areas to be identified in Spring 2021 to understand the practicality of EnerPHit/advance WHR in terms of delivery and benefits to tenants. The pilots will be key demonstrator projects with before and after social and technical monitoring put in place for the duration of the pilots. Learnings from these trials will be extremely important in feeding into the wider WHR approach.
- 4.29.4 **Resident communications and engagement plan** – Council officers are currently working with Climate KIC on a Community Retrofit test of change proposal. Over the Summer of 2021 this initiative will look to develop a mixed tenure model of community retrofit in combination with the Council's own housing programme. One of the key elements of this initiative will be to explore ways to incentivise property owners to increase investment in their property or find alternative sources of finance to fund works.

4.29.5 **Implementing a New Build Design Brief** – A holistic approach will be adopted for all new build housing and regeneration projects. This will take into account the technical performance of the buildings as well as low carbon impact that can be achieved through approaches such as green infrastructure, active travel routes, sustainable drainage and tree planting. This whole development approach is being developed and will be tested at Western Villages which will also set out a monitoring framework for the buildings and post occupancy evaluation which can then be implemented across the programme. Other large mixed-use projects such as Meadowbank, Fountainbridge and Powderhall also provide an opportunity to develop strategies for achieving net zero carbon, tailored to the site and building design and helping to inform the monitoring framework.

Risks to delivering net zero carbon in Council homes and estates

Risk	Mitigation
<p>WHR costs for private owners:</p> <p>Over half of Council Homes sit within a mixed tenure setting and the Council does not have majority ownership in over 4,000 blocks. A significant proportion of WHR measures will require agreement from owners.</p> <p>The costs of advanced WHR measures can range from £25k to £35k per home. This scale of financial investment will be out of reach for most private owners who reside in mixed tenure blocks. As such this could significantly jeopardise the roll out of the WHR programme given that over half of Council homes sit in a mixed tenure block.</p>	<p>The Climate KIC test of change proposal will be developed to explore ways to incentivise property owners to increase investment in their property or find alternative sources of finance to fund WHR works.</p> <p>The acquisitions and disposals strategy will be used to consolidate ownership and dispose of properties where appropriate.</p> <p>Additional funding opportunities will be explored to support private owners to invest in their homes. HEEPS:ABS funding could assist private owners to undertake WHR works. The new Scottish National Investment Bank (SNIB) is expected to play a key role in supporting investment in green infrastructure.</p> <p>The Council is represented on the Scottish Parliamentary Working Group on Tenement Maintenance and following the recommendations in the final report, the Scottish Government responded with their intended actions and proposed timetable. The actions include a commitment to engage the Scottish Law Commission to carry out a law reform project. Shorter-term actions include consideration of compulsory factoring, develop tenement owners association toolkits, research Building Reserve Fund contributions and the inclusion of Tenement Condition Reports within Home Reports.</p> <p>A Tenement App for use by Edinburgh residents living in shared blocks is in development. The App will take owners through the process of engagement, discussion, getting contractor quotations, voting and paying for Common repairs. The App is due to be released in November 2020.</p>

<p>Supply chain limitations: a significant number of skilled contractors (accredited to deliver EnerPHit) and specific building materials and supplies will be required at scale, which will target up to 20,000 existing Council homes and a significant number of private homes. There is the potential risk that the market is not mature enough to deliver this programme at the scale required.</p>	<p>Early engagement with the market will be carried out when planning the EnerPHit pilots which will provide an early opportunity to test the market.</p> <p>The market is expected to react to increased demand, with staff and material shortages only experienced in the early years of the programme.</p>
<p>2030 target misalignment with Scottish Government funding:</p> <p>It is anticipated that the Scottish Government will make significant funding available to support the delivery of the EES programme with funding released incrementally over the next 25 years; aligned to the Government's commitment to achieve net zero carbon by 2045. Due to the Council's earlier net zero carbon target (2030) significant amounts of funding could be missed due to the misalignment in net zero carbon targets.</p>	<p>It will be important to work with the Scottish Government to maximise early opportunities to secure enabling funding given the scale and ambition of the Housing sustainability approach.</p> <p>Other sources of funding will need to be explored such as from the UK Government and agencies such as Innovate UK and Scottish Enterprise, SNIB.</p>

5. Next Steps

- 5.1 Existing work that is underway to deliver EESSH commitment and HEEPS:ABS programmes will continue.
- 5.2 The Council's new build programme will progress delivery following a fabric first approach as set out in the new design guide principles, complemented by sustainability and low carbon design.
- 5.3 The roadmap to Net Zero Carbon by 2030 will be implemented, as detailed at 4.29.
- 5.4 Key elements of the Housing Sustainability approach have been processed through the Carbon Scenario Tool and will be reflected in the Council's sustainability short window improvement plan (SWIP) progress report going to Policy and Sustainability Committee on 10 November 2020. The Housing Service will continue to work collaboratively with colleagues in Strategy and Insight over the coming months to refine both the data which is inputted and the outputs of the Carbon Scenario Tool to inform the roadmap to 2030.

6. Financial impact

- 6.1 The Draft HRA Business Plan 2021/22, presented to this committee, has costed for the additional capital investment required to ensure all new homes are built to net zero carbon and all existing homes, where possible, undergo advance WHR. A carbon offsetting fund from year 10 has also being included, once all fabric upgrades and LZCT options have been exhausted.
- 6.2 In terms of the WHR approach the average cost per home to meet EnerPHit standard is between £25 - £35k.

7. Stakeholder/Community Impact

- 7.1 The Council's ongoing and planned housing sustainability initiatives will have a positive community impact helping to alleviate fuel poverty, reduce carbon emissions, lower fuel bills and address the challenges of mixed tenure ownership in the city.
- 7.2 The Council will continue to work with partners such as Home Energy Scotland to engage private owners and landlords, promoting advice and information services and to encourage landlords to undertake energy efficiency measures.
- 7.3 There is an extensive programme of consultation and engagement with tenants, including surveys, focus groups, tenant panels, tenant led service inspections and resident and community meetings. There is also a dedicated annual budget consultation exercise, as detailed in the HRA Budget Strategy Report to this committee. Making homes easier and cheaper to heat remains a key priority for tenants.
- 7.4 The Council is represented on the Scottish Parliamentary Working Group on Tenement Maintenance and following the recommendations in the final report, the Scottish Government responded with their intended actions and proposed timetable. Shorter-term actions include consideration of compulsory factoring, develop tenement owners association toolkits, research Building Reserve Fund contributions and the inclusion of Tenement Condition Reports within Home Reports. Longer term, Scottish Government plan to engage the Scottish Law Commission to carry out a law reform project.
- 7.5 On 29 September 2020, a workshop was held with members of the Housing Homelessness and Fair Work Committee covering the current and planned work of the Housing Service in the context of the wider net zero carbon commitment. The Housing Service will continue to engage with elected members as work on the Housing sustainability approach is progressed.

8. Background reading/external references

- 8.1 UK local authority & regional carbon dioxide emissions statistics: [2005 to 2018](#)
- 8.2 Home Energy Efficiency Programmes for Scotland: [delivery report 2017-2018](#)
- 8.3 Energy Efficient Scotland: [route map](#)
- 8.4 Council Response to Edinburgh Climate Commission and Sustainability Programme Update, Policy and Sustainability Committee on [23 July 2020](#)
- 8.5 Housing Sustainability, Housing, Homelessness & Fair Work, [20 January 2020](#)
- 8.6 Mixed Tenure Improvement Service Pilot, Finance and Resources, [23 January 2020](#)
- 8.7 2020/21 HRA Budget Strategy 2020-2030, Finance & Resources, [14 February 2020](#)

9. Appendices

- 9.1 None.