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| Committee: | Dated: |
| Residents Consultation Committee Barbican Residential Committee (for information) | 27th September 2021 8th October 2021 |
| Subject: Housing Net Zero Carbon Action Plan - Barbican | Public |
| Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly? | 5,10,11,12 |
| Does this proposal require extra revenue and/or capital spending? | N |
| If so, how much? | N/A |
| What is the source of Funding? | N/A |
| Has this Funding Source been agreed with the Chamberlain's Department? | N/A |
| Report of: Paul Wilkinson, City Surveyor | For Decision |
| Report author: Graeme Low Energy Manager, City Surveyor's Department | |

Summary

The purpose of this report is to set out the key points and recommendations from the City of London Corporation's Housing Net Zero Carbon Action Plan in relation to the Barbican Residential Estate and to seek the agreement of the Committee in respect to the recommended decisions. The Action Plan has been developed in response to the position of the DCCS Housing Portfolio, including the Barbican Estate within the City of London Corporation's Climate Action Strategy. In addition, it supports the regional approach being taken by London Council's Climate Action Programme and more specifically, the Retrofit London Housing Action Plan that was agreed on the 16th July by the London Housing Director's Group.

Recommendation

The Committee is asked to:

- Note the report and its contents.
- Agree the recommended approach to developing priority projects.
- Note that future projects to be taken forward will be received separately for approval via the Gateway process.

Main Report

Background

1. The UK has set in law a target to bring all its greenhouse gas emissions to net zero by 2050. To help achieve this target, the government's ambition is to improve the energy efficiency of homes, and move to cleaner ways of heating homes, in order to halve the energy use of new buildings by the end of this decade.
2. In January 2020, the City Corporation set out on a fast-paced, cross-Corporation journey to develop an ambitious Climate Action Strategy (CAS). The resulting Climate Action Strategy was adopted at Court of Common Council on the 8th October 2020.
3. The CAS marked the start of a new and transformative programme of action. It set out three interlinked primary objectives for the City Corporation and the Square Mile:
 - to support the achievement of net-zero emissions,
 - to build resilience, and
 - to champion sustainable growth.
4. The Climate Action Strategy also set out 4 targets for the City Corporation and Square Mile:
 - Net zero by 2027 in the City Corporation's operations
 - Net zero by 2040 across the City Corporation's full value chain
 - Net zero by 2040 in the Square Mile
 - Climate resilience in our buildings, public spaces and infrastructure
5. To achieve these global goals, the City Corporation has committed a major investment of £68 million. The Net Zero Carbon Housing Action Plan (HAP) seeks to provide recommendations and priorities to ensure our housing stock can meet the net zero targets for both 2027 (housing landlord supplies) and 2040 (residents' own emissions).
6. The plan supports the regional approach being taken by London Councils Climate Action Programme and more specifically, the Retrofit London Housing Action Plan (Appendix 3) that was agreed on the 16th July by the London Housing Director's Group. The HAP is attached as Appendix 2 to this report.
7. Nationally, it has been recognised by Government that grant funding and investment is central to ensuring our homes are improved to the standards required for existing Net Zero Carbon (NZC) commitments. Although indicative costs have been highlighted within the report, the actual cost of meeting the targets will need to be confirmed through more detailed feasibility studies.
8. Two online resident workshops were held in May and July for Barbican Residential Estates, themes such as ventilation and renewable energy were discussed in groups (pg22 of the HAP). These were preceded by a survey which received 45

responses from Barbican Residents. All the information collected has helped to inform the HAP.

Considerations

Pathways to meet targets

9. The Housing Action Plan has modelled scenarios to understand if the identified pathways will reach the CAS targets for 2027 and 2040. It confirms the 2040 target can be met and exceeded, with potential to become carbon negative.
10. For the near term 2027 target two scenarios are presented:
 - a. **Scenario 1:** Retaining communal gas heating systems at York Way and Middlesex St Estates, reaches an overall **95%**, or approximately 4.75ktCO₂e reduction in emissions with land-based sequestration. This scenario will require **5%** (approx. 250 tCO₂) of Housing CO₂ emissions to be reduced elsewhere within the City Corporation's operational emissions.
 - b. **Scenario 2:** Removing all communal gas heating systems alongside energy efficiency measures and Solar Photovoltaics. This scenario exceeds the 2027 target by **7%**, becoming carbon negative.
11. We recommend the adoption of scenario 1 due to the potential to save the additional CO₂ (approx. 250 tCO₂) within the wider operational building portfolio and the recent replacement of these heating systems. Once details surveys have been completed, this position can be reviewed.

Housing Action Plan Priorities

12. The Housing Action plan promotes the prioritisation of project delivery to ensure the right approach is taken to expedite carbon savings. It is recommended that we focus on the following three areas:
 - a. Create synergies with the existing capital works programme. For example, utilising the roof replacement projects to include photovoltaic panels.
 - b. Focus on our biggest carbon emitting estates. For example, tackling estates such as York Way, and Middlesex St Estates first.
 - c. Identify and focus on our estates with the largest potential for fuel poverty. For example, using LSOA data, known energy performance data and Low Income, Low Energy Efficiency (LILEE) indicator data provided through National Statistics to ensure these residents are supported earlier.
13. The Plan has reviewed all 82 buildings within the HRA and Barbican Estates. It has highlighted recommended priorities to be taken forward. Tables 1 and 2 list all recommended priorities with Barbican specific priorities highlighted:

Table 1: Scope 1 & 2 Key Priorities (2027 CAS target).

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| <ul style="list-style-type: none"> • Stop using gas within communally heated estates (as soon as possible) | <ul style="list-style-type: none"> • Maximise use of photovoltaics on the roofs of estates. |
| <ul style="list-style-type: none"> • Make communal lighting more efficient | <ul style="list-style-type: none"> • Install roof insulation early |
| <ul style="list-style-type: none"> • Review controls for energy systems | <ul style="list-style-type: none"> • Review pipework insulation for communal heating systems |

Table 2: Scope 1, 2 & 3 Key Priorities (2040 CAS target).

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| <ul style="list-style-type: none"> • Remove individual gas boilers and replace with low carbon heating alternatives | |
| <ul style="list-style-type: none"> • Improve the energy efficiency of fabric measures through: | |
| 1. Replace windows with triple glazing. | 2. Installing wall insulation where possible |
| 3. Install roof insulation | 4. Improve airtightness of homes |
| 5. Installation of floor insulation | 6. Improve ventilation & heat recovery |
| 7. Install wastewater heat recovery to showers and baths | |

Housing Action Plan Archetypes

14. The Housing Action Plan develops six archetypes covering the 14 housing estates included within the City Corporation's Housing portfolio (pages 37-50 of the HAP). Two of these Archetypes relate to Barbican residential buildings and are used to highlight specific measures for implementation through retrofit plans and carbon pathways. Examples are provided of these plans, and it is recommended that these are further developed for each specific housing block. Samples include:

- a. Archetype: **4. Mix-IWI-Flat**. These include sites with complex facades, with windows, infill panels and brick or clad walls. Roofs are flat and these buildings are often in conservation areas. There is limited internal space for internal wall insulation. Shakespeare Tower is an example of this. Recommended works include: Flat roof insulation; smart controls; heating and DHW storage, solar PV and improved communal lighting.
- b. Archetype: **5. Mix-IWI-Barrel**. These are sites with complex facades, including a mix of windows, panels and bricks. Generally high rise (over 10 stories), they have barrel vaulted roofs which reduces the capacity for insulation. Gilbert House is an example of this archetype. Recommended works, again within the retrofit plan for this site includes: Flat and Barrel roof insulation; smart controls; solar PV and improved communal lighting.

Funding Opportunities

15. Whilst a high-level estimate has been put on achieving a net zero Carbon position for 2027 and 2040, these figures will require further investigative work through feasibility studies to confirm the exact cost and CO₂ saving opportunity. The cost figures within the Housing Action Plan are **indicative only**.

16. The Plan suggests that between now and 2027, the scope 1 & 2 supplies will need investment of approximately £9,000 per unit. Some of this will be found from the CAS allocation of £6m for Housing related projects, which could be expanded if needed from the wider buildings funding allocation. Taking this into account, there will be a need for further funding. Two likely funding routes will be explored further but could be difficult for the Barbican to secure grant funding due to its tenure type. These are as below:

- **Social Housing Decarbonisation Fund (SHDF).** This BEIS funding is expected to provide up to £3.8 bn long term investment to ensure Social Housing can reach a minimum EPC “C”. This funding limits the number of leasehold properties that could apply as part of a wider bid and will be delivered in waves phase 1 (£160M) application deadline is October 15th, 2021. SHDF will require 1/3 match funding contribution.
- **Energy Company Obligation 4 (ECO4).** Opening in 2022 this is likely to provide significant funding opportunities (up to £1bn per annum) through to 2026. It is likely to continue focusing on low-income, fuel poor homes and those homes that are least efficient. A target to improve homes to EPC level B by 2025 and EPC level C by 2030.

17. As this programme of works represents a significant opportunity to improve the efficiency of our stock, the Net Zero Carbon Housing Action Plan (HAP) considers an approach to maximise the benefit of this programme, by recommending minimum U values for thermal elements. Other measures which form part of the programme, which will support the decarbonisation of the Barbican residential estate include:

- Installing LED lighting to replace inefficient, older less efficient communal lighting across all Barbican residential properties.
- Installing improved heating controls, to maximise the efficiency of the existing heating system.
- Installation of improved roof insulation with the integration of PV where suitable.

Next Steps

18. Whilst the action plan has set out a path detailing how we should approach the decarbonisation of our housing portfolio; it is not intended to provide sufficient detail to enable individual projects to proceed. We recommend that the outlined priorities of: Improving building fabric; integrating photovoltaic panels within roofs; reviewing control systems and the continued replacement of inefficient lighting with LED technology are taken forward with further feasibility studies and presented in due course to Committees for approval accordingly.

19. In achieving scenario 1, current long-term projects for gas communal heating that are in progress can remain. Due to the nature of communal heating projects, we recommend undertaking further investigation into the removal of fossil fuel derived communal heating to enable our CAS targets to be met.

Corporate & Strategic Implications

20. **Strategic implications:** Our energy performance helps to shape outstanding environments for our residents through the reduction of CO2 emissions and our commitment to procuring clean renewable energy. In this way our energy performance helps shape outcomes 5, 11 and 12 of the Corporate Plan.

21. **Financial implications:** Whilst the Housing Action Plan highlights estimated costs of £45m to reach the 2027 CAS targets for the City Corporation's own scope 1 & 2 emissions, these figures are speculative and require further detailed feasibility work to priority projects before confidence can be placed on the cost of meeting these obligations. There remains a strong possibility that meeting the objectives of the CAS for Housing will require further funding including external grant support.

22. **Climate implications:** The Housing Action Plan has provided further detailed evidence supporting the approach we need to take to reach the NZC challenges for the City of London Corporation's Housing Stock. It demonstrates the potential to meet and go beyond these targets but presents many challenges such as the decarbonisation of heat that must be addressed if we are to meet our goals.

Conclusion

23. The City of London Net Zero Carbon Action Plan has been developed to help create a route to reaching our Net Zero Carbon objectives. It advises on the scope of this work and lays out suggested priorities to be taken forward. The plan provides commentary on the potential costs and sources of funding that can be utilised. With our next steps, we need to build on the outlined approach and begin implementing feasibility studies to provide greater certainty around the cost and carbon savings that will be attributed to these projects

Appendices

Appendix 1– City of London Corporation's Climate Action Strategy

Appendix 2 – City of London Corporation Housing NZ Carbon Action Plan (rev J)

Appendix 3 – London Council's Retrofit London Housing Action Plan (rev N)

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