



## Community & Children's Services Committee

**Date:** FRIDAY, 24 SEPTEMBER 2021

**Time:** 1.45 pm

**Venue:** INFORMAL VIRTUAL PUBLIC MEETING (ACCESSIBLE REMOTELY):  
<https://youtu.be/D2ZKJVeL3Pc>

<b>Members:</b>	Ruby Sayed (Chairman)	Deputy Henry Jones
	Randall Anderson (Deputy Chairman)	Jørgensen
	Deputy John Absalom	Alderman Alastair King
	Rehana Ameer	Natasha Maria Cabrera Lloyd-Owen
	Matthew Bell	Alderman Bronek Masojada
	Peter Bennett	Deputy Catherine McGuinness
	Nicholas Bensted-Smith	Benjamin Murphy
	Deputy Keith Bottomley	Dhruv Patel
	Mary Durcan	Susan Pearson
	Alderman Prof. Emma Edhem	William Pimlott
	Helen Fentimen	Matt Piper
	John Fletcher	Deputy Elizabeth Rogula
	Marianne Fredericks	Deputy Tom Sleigh
	Caroline Haines	Sir Michael Snyder
	The Revd Stephen Haines	Mark Wheatley
	Graeme Harrower	Deputy Philip Woodhouse
	Sheriff Christopher Hayward	Dawn Wright
	Deputy Jamie Ingham Clark	
	Alderman Gregory Jones QC	

**Enquiries:** [julie.mayer@cityoflondon.gov.uk](mailto:julie.mayer@cityoflondon.gov.uk)

### Accessing the virtual public meeting

This meeting will be a virtual meeting and therefore will not take place in a physical location. Any views reached by the Committee today will have to be considered by *the Director of Community and Children's Services* after the meeting in accordance with the Court of Common Council's Covid Approval Procedure who will make a formal decision having considered all relevant matters.



This process reflects the current position in respect of the holding of formal Local Authority meetings and the Court of Common Council's decision of 15th April 2021 to continue with virtual meetings and take formal decisions through a delegation to the Town Clerk and other officers nominated by him after the informal meeting has taken place and the will of the Committee is known in open session. Details of all decisions taken under the Covid Approval Procedure will be available on line via the City Corporation's webpages.

A recording of the public meeting will be available via the above link following the end of the public meeting for up to one municipal year. Please note: Online meeting recordings do not constitute the formal minutes of the meeting; minutes are written and are available on the City of London Corporation's website. Recordings may be edited, at the discretion of the proper officer, to remove any inappropriate material.

**John Barradell**  
**Town Clerk and Chief Executive**



# **AGENDA**

## **Part 1 - Public Reports**

1. **APOLOGIES**

2. **MEMBERS' DECLARATIONS UNDER THE CODE OF CONDUCT IN RESPECT OF ITEMS ON THE AGENDA**

3. **MINUTES**

To agree the public minutes and non-public summary of the last meeting.

**For Decision**  
(Pages 7 - 10)

4. **OUTSTANDING ACTIONS**

To receive the Outstanding Actions List.

**For Information**  
(Pages 11 - 12)

5. **TO APPOINT 1 OR 2 MEMBERS FROM THE COURT TO THE HOUSING MANAGEMENT AND ALMSHOUSES SUB COMMITTEE**

Chairman and Town Clerk to be heard.

**For Decision**

6. **HOUSING NET ZERO CARBON ACTION PLAN**

Presentation and Report of the Director of Community and Children's Services.

**For Decision**  
(Pages 13 - 246)

7. **IMPLICATIONS OF FIRE SAFETY ACT 2021**

Joint report of the Remembrancer and the Director of Community and Children's Services.

**For Information**  
(Pages 247 - 254)

8. **WINDOWS PROGRAMME AND COMMON PARTS REDECORATIONS - GOLDEN LANE ESTATE: GW3 ISSUE REPORT**

Report of the Director of Community and Children's Services.

*Please note a non-public appendix at agenda item 22.*

**For Decision**  
(Pages 255 - 264)



9. **GOLDEN LANE SPORT AND FITNESS CENTRE LEASE EXTENSION**  
Report of the Director of Community and Children's Services.  
**For Decision**  
(Pages 265 - 268)
10. **BARBICAN AND COMMUNITY LIBRARIES - LIBRARY STRATEGY**  
Report of the Director of Community and Children's Services.  
**For Information**  
(Pages 269 - 286)
11. **LIBRARY MANAGEMENT SYSTEM - GATEWAY 2 - PROJECT PROPOSAL**  
Report of the Director of Community and Children's Services.  
**For Decision**  
(Pages 287 - 298)
12. **HOMELESSNESS LINK - IMMIGRATION PLEDGE APPEAL**  
Report of the Director of Community and Children's Services.  
**For Information**  
(Pages 299 - 314)
13. **BUSINESS PLAN QUARTER 1 - 2021/22**  
Report of the Director of Community and Children's Services.  
**For Information**  
(Pages 315 - 332)
14. **COVID UPDATE**  
Director of Public Health to be heard.  
**For Information**
15. **QUESTIONS ON MATTERS RELATING TO THE WORK OF THE COMMITTEE**
16. **ANY OTHER BUSINESS THAT THE CHAIRMAN CONSIDERS URGENT**
17. **EXCLUSION OF THE PUBLIC**  
MOTION - That under Section 100A(4) of the Local Government Act 1972, the public be excluded from the meeting for the following items of business on the grounds that they involve the likely disclosure of exempt information as defined in Paragraph 3 of Part I of Schedule 12A of the Local Government Act.



**Part 2 - Non-Public Reports**

**18. NON-PUBLIC MINUTES**

To agree the non-public minutes of the previous meeting.

**For Decision**  
(Pages 333 - 336)

**19. SUICIDE PREVENTION IN THE CITY OF LONDON**

Report of the Deputy Town Clerk.

**For Decision**  
(Pages 337 - 356)

**20. COMMISSIONING CONTRACTS REGISTER**

Report of the Director of Community and Children's Services.

**For Information**  
(Pages 357 - 366)

**21. WATER CHARGE REFUNDS SECURE TENANTS**

Report of the Director of Community and Children's Services.

**For Decision**  
(Pages 367 - 386)

**22. WINDOWS PROGRAMME AND COMMON PARTS REDECORATIONS - GOLDEN LANE ESTATE: GW3 ISSUE REPORT - APPENDIX 2**

A non-public appendix in respect of agenda item 8.

**For Information**  
(Pages 387 - 398)

**23. ISLEDEN HOUSE INFILL PROJECT - GATEWAY 5 - ISSUES REPORT**

Report of the Director of Community and Children's Services.

**For Decision**  
(Pages 399 - 430)

**24. FUTURE PROPOSAL FOR PORTSOKEN PAVILLION**

Report of the Director of Community and Children's Services.

**For Decision**  
(Pages 431 - 440)



25. **MIDDLESEX STREET CAR PARK - GATEWAY 6 - OUTCOME REPORT**

Report of the City Surveyor.

**For Decision**  
(Pages 441 - 454)

26. **REPORT OF ACTION TAKEN**

Report of the Town Clerk.

**For Information**  
(Pages 455 - 456)

27. **QUESTIONS ON MATTERS RELATING TO THE WORK OF THE COMMITTEE**

28. **ANY OTHER BUSINESS THAT THE CHAIRMAN CONSIDERS URGENT AND WHICH THE COMMITTEE AGREE SHOULD BE CONSIDERED WHILST THE PUBLIC ARE EXCLUDED**



## COMMUNITY & CHILDREN'S SERVICES COMMITTEE

Friday, 9 July 2021

Minutes of the meeting held via Microsoft Teams and livestreamed  
to: <https://youtu.be/WQbErpRY360> at 11 am

**The recording will be available for 1 year from the date of the meeting**

*N.B. This meeting was held as an informal one, with the views reached by the Committee approved formally by the Town Clerk after the meeting, in accordance with the Court of Common Council's Covid Approval Procedure. This process reflects the current position in respect of the holding of formal Local Authority meetings and the Court's decision of 15 April 2021 to continue with virtual meetings, with formal confirmation of decisions provided through a delegation to the Town Clerk (or his nominated representative) after the informal meeting has taken place and the will of the Committee is known.*

### Present

#### Members:

Ruby Sayed (Chairman)	Graeme Harrower
Randall Anderson (Deputy Chairman)	Alderman Bronek Masojada
Benjamin Murphy	Alderman Alastair King
Matthew Bell	Deputy Jamie Ingham Clark
Peter Bennett	Deputy Elizabeth Rogula
Mary Durcan	Sir Michael Snyder
Marianne Fredericks	Dawn Wright
The Revd Stephen Haines	Alderman Emma Edhem
Caroline Haines	Deputy Tom Sleigh
Helen Fentimen	Mark Wheatley
Deputy Catherine McGuinness	Rehana Ameer
Susan Pearson	Deputy Henry Jones
William Pimlott	

**In attendance:** Ann Holmes, Mark Bostock

#### Officers:

Andrew Carter	- Director of Community and Children's Services
Paul Murtagh	- Assistant Director, Barbican and Property Services
Carol Boswarthack	- Head of Barbican and Community Libraries
Gerald Mehrtens	- Community and Children's Services
Jason Hayes	- Community and Children's Services
Julie Fittock	- City Surveyors
Ola Obadara	- City Surveyors
Julie Mayer	- Town Clerks
Mark Jarvis	- Chamberlain's

#### 1. APOLOGIES

Apologies were received from Keith Bottomley and Sheriff Christopher Hayward.

#### 2. MEMBERS' DECLARATIONS UNDER THE CODE OF CONDUCT IN RESPECT OF ITEMS ON THE AGENDA

There were no declarations.



3. **MINUTES**

RESOLVED, That – the public minutes and non-public summary of the meeting held on 11 June 2021 be approved.

**Matters arising:**

1. Officers agreed to follow up a Members' enquiry about the First Love Foundation, in respect of the closure of the Square Mile Food Bank.
2. The Commissioning Report would be presented to the next meeting of the Committee.
3. The actions list in respect of Covid and lessons learnt would be captured by the High Level Strategic Business Plan, which is reported regularly to this Committee.
4. In respect of the seasonal flu plan, the Director of Public Health (City and Hackney) would provide a written response, which would be included with the circulation of the the minutes of this meeting.

4. **OUTSTANDING ACTIONS**

The Committee received the outstanding actions list.

5. **REVENUE OUTTURN 2020/21 - COMMUNITY AND CHILDREN'S SERVICES COMMITTEE (CITY FUND)**

The Committee received a joint report of the Director of Community and Children's Services and the Chamberlain regarding the Revenue Outturn 2020/21 – Community and Children's Services Committee (City Fund).

The Chair suggested that, as this item interrelated to item 12 (Housing Revenue Account Overview), any detailed discussion should be confined to the non-public part of the agenda

RESOLVED, That – the report be noted.

6. **HOUSING REVENUE ACCOUNT- OUTTURN 2021/21**

The Committee received a joint report of the Chamberlain and the Director of Community and Children's Services regarding the Housing Revenue Account – Outturn 2021/22.

RESOLVED, That – the report be noted.

7. **HRA COMMERCIAL TENANTS: CURRENT TENANT ARREARS AND TERMS OF REPAYMENT PLANS RELATING TO COVID-19 RENTAL SUPPORT**

The Committee considered a report of the Director of Community and Children's Services in relation to the HRA Commercial Tenants: Current Tenant Arrears and Terms of Repayment Plans Relating to COVID-19 Rental Support.



Members noted the impact of the press release, and once the engagement had started, officers would be in a better position to report back to Members. The Assistant Director, Barbican and Property Services, had written to all commercial tenants reminding them of the opportunity for assistance and the extended deadline.

Whilst there wasn't an appeals process as such, the Head of Barbican and Community Libraries advised that the City Business Library had been relaunched as the 'Small Business Research and Enterprise Centre'. The centre had been helping applicants with the administrative aspects of applying for the grant, and every attempt was being made to ensure they were successful. The Chamberlain's team had also been assisting tenants.

The officer advised that virtually all SME tenants (within the micro-business category) had qualified for a rent free quarter in June 2020; ie - the rent forgiveness required under the grant application process.

RESOLVED, That – the Committee:

1. delegate authority to the City Surveyor to agree best fit (shortest practical timescales to achieving repayment) voluntary repayment plans from the options outlined in paragraphs 5 and 6 of the 29th June 2021 report to the Resource Allocation Sub Committee ( RASC);

and it be noted that :

2. where tenants fail to engage, or agree voluntary repayment plans, this will lead to the City reconsidering the position post March 2022.
3. no further rent or service charge concessions (rent frees or deferrals) are recommended for this quarter.
4. any costs of repayment plans, including legal fees and any budget impact from repayment plans, will need to be met from existing department budgets. However, it also be noted that the opportunity for budget holding departments to submit a business case to RASC for additional resources is proposed to continue to be available until at least September 2021.

**8. QUESTIONS ON MATTERS RELATING TO THE WORK OF THE COMMITTEE**

There were no questions.

**9. ANY OTHER BUSINESS THAT THE CHAIRMAN CONSIDERS URGENT**

There was no other business.



10. **EXCLUSION OF THE PUBLIC**

RESOLVED – That under Section 100(A) of the Local Government Act 1972, the public be excluded from the meeting for the following items on the grounds that they involve the likely disclosure of exempt information as defined in Part I of the Schedule 12A of the Local Government Act.

Item nos	Paragraph No
11-13	3
14	2,3

11. **NON-PUBLIC MINUTES**

RESOLVED, that – the public minutes of the meeting held on 11 June 2021 be approved.

12. **HRA OVERVIEW**

The Committee received a joint report of the Chamberlain and the Director of Community and Children's Services.

13. **SYDENHAM HILL REDEVELOPMENT, LEWISHAM, SE26 6ND SYDENHAM HILL**

The Committee received a report of the City Surveyor.

14. **HRA COMMERCIAL TENANTS: CURRENT TENANT ARREARS AND TERMS OF REPAYMENT PLANS RELATING TO COVID-19 RENTAL SUPPORT - NON PUBLIC APPENDICES**

The Committee received the non-public appendices in respect of agenda item 7.

15. **QUESTIONS ON MATTERS RELATING TO THE WORK OF THE COMMITTEE**

There were no questions.

16. **ANY OTHER BUSINESS THAT THE CHAIRMAN CONSIDERS URGENT AND WHICH THE COMMITTEE AGREE SHOULD BE CONSIDERED WHILST THE PUBLIC ARE EXCLUDED**

Two items of business were considered whilst the public were excluded.

**The meeting ended at 12.30 pm**

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Chairman

**Contact Officer: Julie Mayer tel. no. 020 7332 1410  
julie.mayer@cityoflondon.gov.uk**



DCCS Committee Outstanding Action Tracker				
Date added	Title	Action	Responsible Officer and target date	Comments/ Update
09/07/2021	Matters Arising	Officers agreed to follow up a Members' enquiry about the First Love Foundation, in respect of the closure of the Square Mile Food Bank.	Assistant Director of Commissioning and Partnerships	Presenting to CCS in November 2021
09/07/2021	Matters Arising	The Commissioning Report would be presented to the next meeting of the Committee.	Assistant Director of Commissioning and Partnerships	Item on the agenda for September 2021
09/07/2021	HRA Commercial Tenants: Current tenant arrears and terms of repayment plans relating to Covid-19 rental support	Members noted the impact of the press release, and once the engagement had started, officers would be in a better position to report back to Members. The Assistant Director, Barbican and Property Services, had written to all commercial tenants reminding them of the opportunity for assistance and the extended deadline.	Assistant Director, Barbican and Property Services	The Assistant Director wrote again to all HRA commercial tenants, advising them of the extended deadline for applications for the City of London Recovery Grant Fund (Friday 30 July) and, encouraging those who had not, as yet, made an application for assistance, to do so. Several further enquiries were received and responded to as a result of the letter that was sent out.
11/06/2021	CITY WELLBEING CENTRE	Further report on City Wellbeing Centre to update on activity following the September relaunch.	Assistant Director of Commissioning and Partnerships	Scheduled for December committee so centre can report on experience since relaunch.



11/06/2021	COVID-19 LESSONS LEARNT	Action list to be produced in relation to the recommendations of the COVID Working Party to allow the Committee an opportunity to keep track of these.		Committee agreed that the recommendations would be incorporated into the business planning and objectives for the department and monitored accordingly.
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<b>Committee:</b>	<b>Dated:</b>
Community and Children's Services Corporate Asset Sub- Committee (for information)	24th September 2021 30 <sup>th</sup> September 2021
<b>Subject:</b> Housing Net Zero Carbon Action Plan	<b>Public</b>
<b>Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly?</b>	<b>5,10,11,12</b>
<b>Does this proposal require extra revenue and/or capital spending?</b>	<b>N</b>
<b>If so, how much?</b>	<b>N/A</b>
<b>What is the source of Funding?</b>	<b>N/A</b>
<b>Has this Funding Source been agreed with the Chamberlain's Department?</b>	<b>N/A</b>
<b>Report of:</b> Paul Wilkinson, City Surveyor	<b>For Decision</b>
<b>Report author:</b> 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 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 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 16<sup>th</sup> 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 8<sup>th</sup> 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 16<sup>th</sup> 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. Five online resident workshops were held in May and July for both the HRA and 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 107 responses. 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 4.75ktCO<sub>2</sub>e reduction in emissions with land-based sequestration. This scenario will require **5%** (approx. 250 tCO<sub>2</sub>) of Housing CO<sub>2</sub> 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 CO<sub>2</sub> (approx. 250 tCO<sub>2</sub>) 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 including:

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



• Stop using gas within communally heated estates (as soon as possible)	• Maximise use of photovoltaics on the roofs of estates.
• Make communal lighting more efficient	• Install roof insulation early
• Review controls for energy systems	• Review pipework insulation for communal heating systems

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

• Remove individual gas boilers and replace with low carbon heating alternatives	
• 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). These Archetypes are used to highlight specific retrofit 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: **1. Trad-IWI-Loft**. These are sites with solid brick walls, complex / heritage facades and pitched roofs. These sites are mostly low rise with individual gas boilers. The City of London Almshouses are an example of this archetype. Recommended works within the retrofit plan for this site includes: Individual Heat Pumps; smart energy controls; 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. Crescent House is an example of this archetype. Recommended works, again within the retrofit plan for this site includes: Flat 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 CO<sub>2</sub> 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 £45m (subject to further confirmation). Some of this will be found from existing HRA capital projects and an additional £6m is currently planned for Housing related projects through CAS capital funding. Taking this into account, there will be a need for further funding. The City Corporation could find this externally. Two likely funding routes will be explored further including:

- d. **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 excludes leasehold properties and will be delivered in waves phase 1 (£160M) application deadline is October 15<sup>th</sup>, 2021. SHDF will require 1/3 match funding contribution.
- e. **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.

#### Housing Delivery Programme

17. Additional emissions from new build homes have been factored into the Action Plan. The Housing Design Guide (HDG) has recently been updated to reflect the Climate Action Strategy. Additionally, the recently adopted London Energy Transformation Initiative (LETI) Design Guide has been used for the York Way development. Overall, 700 new homes are planned in future years. The Housing Action Plan indicates that by keeping to the HDG and LETI principals and by ensuring fossil fuels are not included within the developments, the CAS targets remain achievable.

#### Major Works Programme

18. City Corporation is committed to investing circa £75million on a Major Works Programme for the maintenance, refurbishment and improvement of its social housing portfolio. The works include several elements that will contribute to the decarbonisation of our stock, this includes window replacements; front door replacements; re-roofing and heating replacements.

19. 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 Housing Estate include:

- Installing LED lighting to replace inefficient, failed and obsolete communal lighting across all our social housing estates.



- Installing Building Management Systems (BMS) as part of the replacement of the communal/district heating schemes at York Way, Golden Lane and Middlesex Street.

### Next Steps

20. 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.
21. 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**

22. **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.
23. **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.
24. **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

25. 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)

### **Graeme Low**

Energy Manager, City Surveyors Department

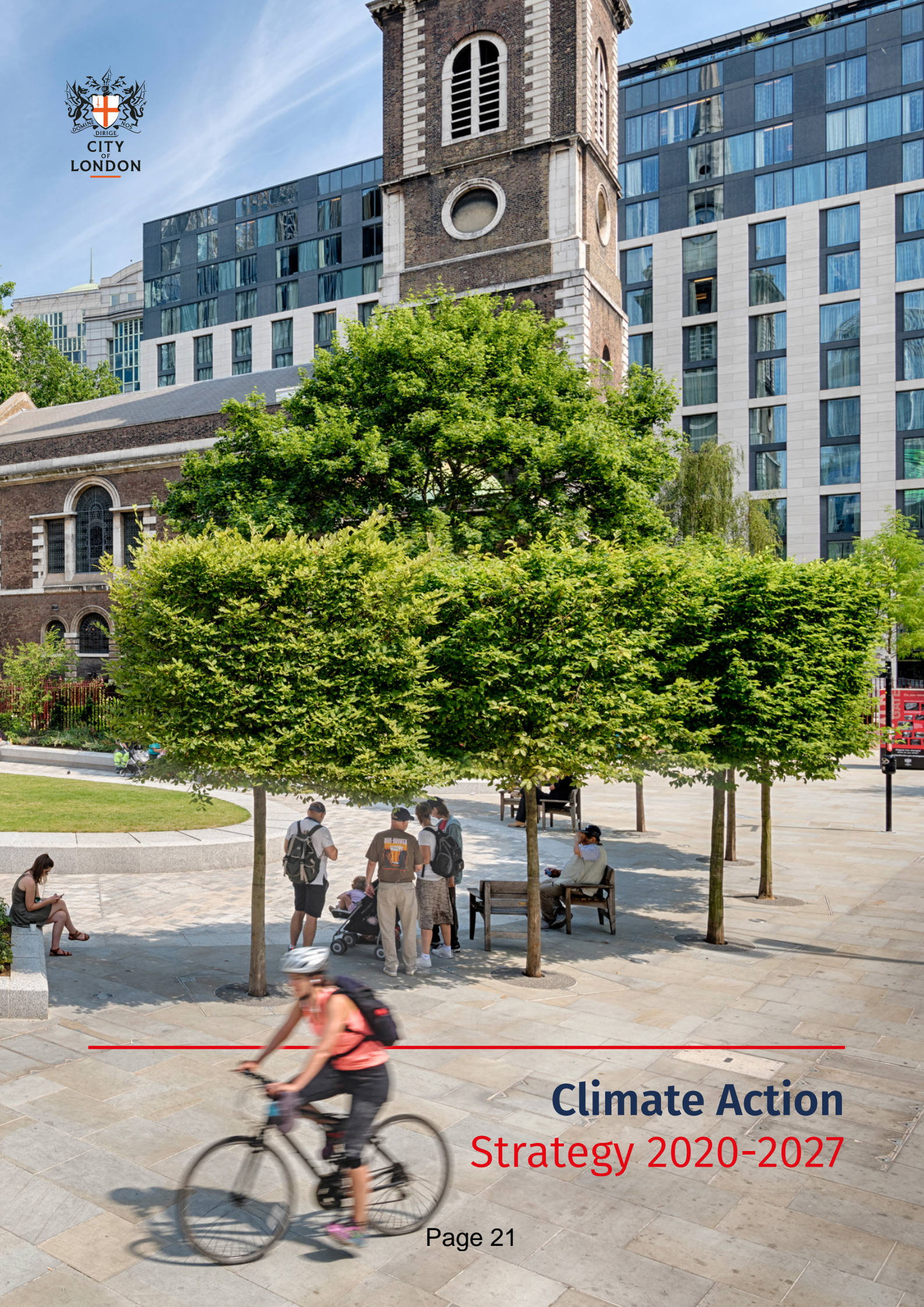
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# Climate Action Strategy 2020-2027



# Executive summary

*This document sets out the City of London Corporation's Climate Action Strategy from 2020 onwards. It explains the importance of climate action to the achievement of the economic, societal and environmental outcomes described in our Corporate Plan, 2018-23. It describes why we need to act now and the our rigorous approach for the first six years.*

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# The headlines



## THROUGH THIS STRATEGY THE CITY CORPORATION COMMITS TO ACHIEVING:

- ✓ 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



## ACROSS THE SQUARE MILE WE WILL:

- ✓ Work with all stakeholder groups to accelerate the transition to net zero
- ✓ Support SMEs to reach net zero
- ✓ Invest in making the Square Mile more resilient to extreme weather and flooding



## AT THE CITY CORPORATION WE WILL DO THIS THROUGH MAJOR INVESTMENT IN:

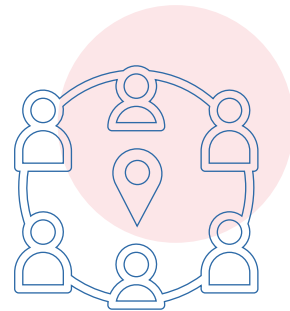
- ✓ Improving energy efficiency at our investment and corporate properties
- ✓ Protecting our shared natural resources
- ✓ Aligning our investment portfolio with the Paris Agreement
- ✓ Driving net zero through our supply chain
- ✓ Enhancing carbon removal in our open spaces
- ✓ Integrating climate considerations into all our decisions



## Who we are

The City of London Corporation is the governing body of the Square Mile, dedicated to a vibrant and thriving City, supporting a diverse and sustainable London within a globally-successful UK.

The Square Mile is the historic centre of London and is home to the 'City' – the financial and commercial heart of the UK. Our reach extends far beyond the Square Mile's boundaries and across private, public and charitable and community sector responsibilities. We bring an independent and non-party political voice and convening power. This enables us to promote the interests of people and organisations across London and the UK and play a valued role on the world-stage.



**Our reach extends far beyond the Square Mile's boundaries** and across private, public and charitable and community sector responsibilities.



## Why us? Why now?

The City of London Corporation's core purpose is to promote the long-term interests of the City, and thereby support the UK's economy. We have long been champions of sustainability. We were the first local government body to introduce a smokeless zone, in 1954, two years ahead of the Clean Air Act. We developed a climate change adaptation strategy in 2010. Since then, we have supported the growth of the UK's green finance sector.

Scientific evidence tells us that the climate is already changing. We need to act now if we are to limit global warming to 1.5 degrees, thereby avoiding the more extreme effects of climate change. This means we must commit to achieving net zero. And we must ensure that the Square Mile, and our assets outside it, are resilient to more extreme weather events. Acting now is the right and responsible thing to do. It is also key to securing and advancing our global market position as a financial centre. It will also strengthen the appeal of our buildings, investment properties and public spaces as attractive places to work, live, study and visit, both now and in the future.

We do not need to compromise the economy to fix the environment. In reality, climate action will drive growth and jobs. In order to remain relevant and commercially viable, we need to be responsible and resilient.

What used to be 'green finance' is fast becoming the only option for the financial and professional services sector. Integrating climate risks and opportunities into all decision-making is similarly becoming the new normal.

In developing this strategy, we have focused on achieving best practice. Driven by an evidence-based approach, we have included a broad range of emission sources and physical risks. Founded on science-based targets, rather than simply a call to action, our Climate Action Strategy aims to ensure that the Square Mile and City Corporation make a positive contribution. We will help tackle climate change, address the resilience risks it poses, and seize the opportunities presented by the transition to a net zero economy.

This is one of the defining cross-City Corporation policies. It supports delivery of our Corporate Plan, 2018-23. But we cannot do this alone. This strategy sets out how we will work in partnership with our stakeholders to develop the solutions to tackle climate change. We must build back better following the pandemic, making sure no one is left behind. We invite you to work with us as we adapt so that our society can flourish for decades to come.



This means we must commit to achieving net zero and to ensuring that the Square Mile, and our assets outside it, are resilient to more extreme weather events."

**Alderman William Russell,**  
The Rt. Hon. The Lord Mayor of the City of London



**Alderman William Russell**  
The Rt. Hon.  
The Lord Mayor of the City of London



**Catherine McGuinness**  
Chair of the Policy & Resources Committee,  
The City of London Corporation

## What we can do

*In the context of climate action, this means we can support the achievement of net zero, build climate resilience and champion sustainable growth to achieve a truly sustainable City. We will do this by means of the following actions, committed to in our Corporate Plan, 2018-23, against which we drive our performance.*

### 1. SUPPORT THE ACHIEVEMENT OF NET ZERO BY...

- Influencing UK and global policy and regulation and international agreements to protect the environment.
- Providing environmental stewardship and advocacy, in the use of resources, emissions, conservation, greening, biodiversity and access to nature.
- Providing a clean environment and driving down the negative effects of our own activities.

### 2. BUILD CLIMATE RESILIENCE BY...

- Preparing our response to natural and man-made threats.
- Protecting consumers and users of buildings, streets and public spaces.
- Providing thriving and biodiverse green spaces and urban habitats.

### 3. CHAMPION SUSTAINABLE GROWTH BY...

- Providing world-class spaces for businesses and markets to thrive.
- Modelling new ways of delivering inclusive and sustainable growth.
- Supporting organisations in pioneering, preparing for and responding to changes in regulations, markets, products and ways of working.
- Supporting, celebrating and advocating responsible practices and investment.



# Our approach

*We cannot fulfil our ambitions alone. This means we must first demonstrate robust climate action ourselves. We will also share our methodology with, and learn from, others on this journey.*

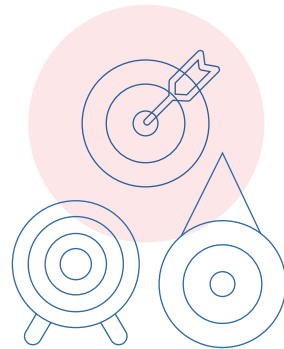
In developing this strategy, we have focused on achieving best practice with our evidence-based approach and the breadth of emission sources and physical risks we address. We are committed to embedding climate action in everything we do and working within the latest standards and advice.

## OUR EVIDENCE BASE

This strategy brings together numerous related City Corporation strategies, policies and campaigns – from our Local Plan and Responsible Business Strategy through to our Clean City Awards. It builds on the momentum, progress and lessons learned so far. See the ‘Our baseline’ section for more information on achievements to date.

To understand how far we had come already and what is left to do, we commissioned expert advice on our current and future resilience levels, carbon emissions and capacity for removing carbon from the atmosphere. We followed the leading global standards and best practice guidelines in developing our approach.

We explored resilience risks with the sectors and organisations that our economic growth is built upon, from utilities and transport providers through to financial and professional services and our cultural sector. Together, we identified what is needed for the Square Mile to continue to compete successfully in the face of climate change. And we asked the public how important climate action should be to us. We asked them what they would like to see happen and what they would be willing to do themselves. Three-quarters of respondents said climate change should be extremely important to us.



We have identified separate targets for the Square Mile and the City Corporation. These have been understood **by emission type to ensure progress in all key areas.**

We have built an evidence base upon which we have designed our action plan. We have the data we need to set and track stretch but achievable targets. We will test and learn as we go. We have identified separate targets for the Square Mile, the City Corporation and types of emissions to ensure we deliver as much as possible, as soon as possible.

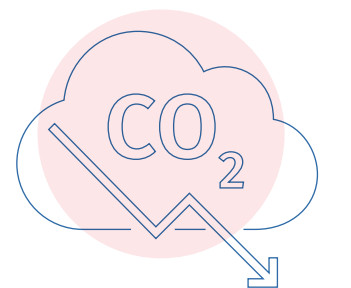
## THE BREADTH OF EMISSION SOURCES WE INCLUDE

Many organisations and authorities focus on driving down the emissions they have most control over – scope 1 and 2. Addressing scope 3 can be daunting as it covers everything an organisation buys, sells, invests in, leases to others and disposes of as well as commuting and business travel. But for organisations and financial centres like ours, scope 3 makes up a large portion of the total carbon footprint. Measuring it can lead to the design of innovative solutions to reduce carbon emissions significantly.

We have included scope 1, 2 and all scope 3 emissions to take ownership, show leadership and help make this standard practice. This can make it appear that we are greater emitters than our peers that have not included Scope 3. We will continue to enhance our understanding of scope 3 data with our partners. We will also advocate for standardisation of reporting to ensure everyone addresses their total carbon footprint effectively.



**1,520**  
ktCO<sub>2</sub>e  
Scope 3



**36**  
ktCO<sub>2</sub>e  
Scope 1 and 2

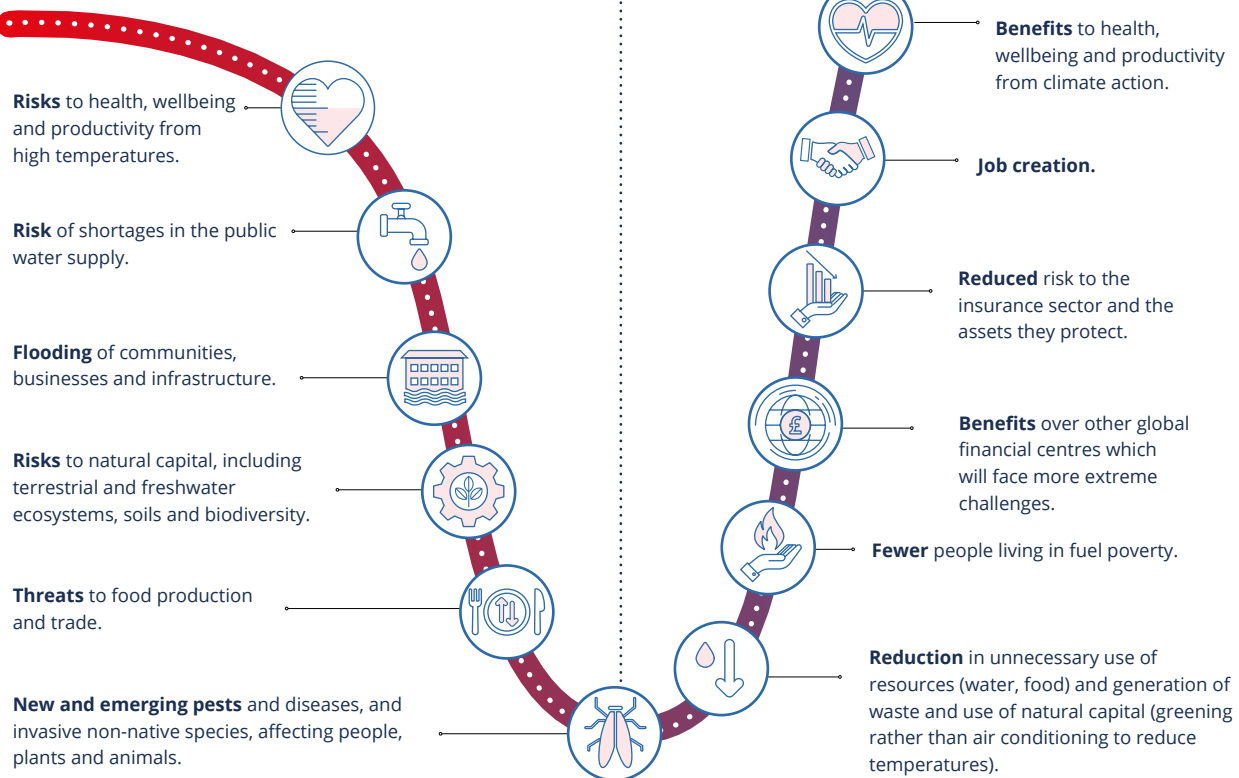
For organisations and financial centres like ours, **scope 3 makes up a large portion of the total carbon footprint** – and measuring it can lead to the design of innovative solutions to reduce carbon emissions significantly.



## TURNING RISKS INTO OPPORTUNITIES

Whatever action we and others take, we still need to prepare for hotter drier summers, warmer wetter winters, stronger winds, more frequent extreme weather events and rising sea levels. As we do this, we will go beyond mitigation and seize opportunities to deliver social, economic and environmental outcomes that mean that everyone benefits from the action we take.

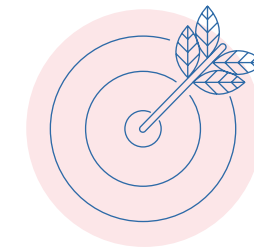
### RISKS



## HOW WE COMPLEMENT OTHERS' EFFORTS

This strategy has been developed to support the delivery of The Paris Agreement on climate change (2015) and our obligations under the UK Climate Change Act (amended 2019). This has enshrined in law both a target of net zero emissions by 2050 and measures for climate adaptation (improved resilience). It is complementary to London-wide and national efforts to reduce emissions and improve the resilience of our communities and urban spaces.

Crucially, this includes the draft London Plan, the Greater London Authority's London City Resilience Strategy 2020, the UK Committee on Climate Change Climate Risk Assessment 2017 and National Adaptation Programme. It also covers the landscape of policies set out by government and advice from the Intergovernmental Panel on Climate Change (IPCC).



The UK Climate Change Act (amended 2019) has enshrined in law both **a target of net zero emissions by 2050 and measures for climate adaptation.**



## FACTORING CLIMATE ACTION INTO EVERYTHING WE DO

Reinforcing and building on the commitments we made in our Corporate Plan (2018-23), and to make sure we are doing all we can to reach our goals, we commit to:

**Working with our stakeholders and partners** and listening to their ideas, experiences and views.

**Ensuring that vulnerable groups** who are most likely to be impacted by climate change **are prioritised** in our decision-making.

**Identifying measurable targets** to track performance against our goals.

**Keeping our actions and targets in line with changing legislation** and recommendations (see next section for more details).

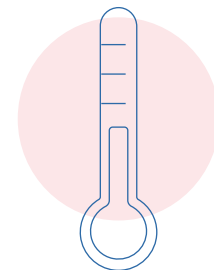
**Accessing the best evidence** of our impact possible so we can learn, share our experience and hone our actions as we go.

**Embedding a climate lens** into all our decision-making.

**Monitoring progress** against our targets at regular intervals.

**Reporting publicly** to our committees and via published annual reports.

**Reviewing and refreshing** the action plan every five years.



We still need to **prepare for hotter drier summers, warmer wetter winters, stronger winds, more frequent extreme weather events and rising sea levels.**

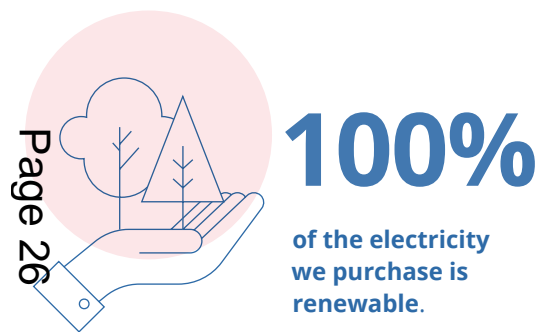


# Our Baseline

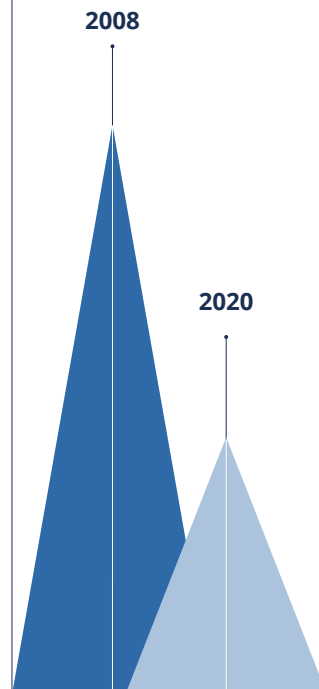
## SUPPORTING THE ACHIEVEMENT OF NET ZERO

The City Corporation has achieved a 19% reduction in energy consumption within our operational sites since 2008. Since 2018, 100% of the electricity we have purchased has been from renewable sources.

We bought six new electric vehicles and eight new hybrid vehicles in 2018/19. And in 2019/20 installed 20 new electric vehicle charging points as part of the City's "Transition to a Zero Emission Fleet" policy.



## Square Mile scope 1 and 2 emissions

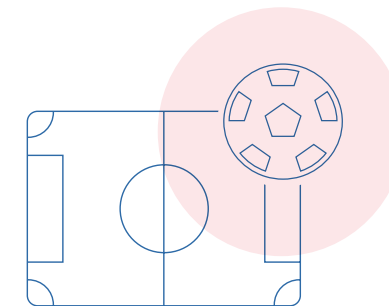


The Square Mile has achieved a 55% reduction in Scope 1 and 2 emissions since 2008 (using data from 2018/19). This has been assisted by our ambitious planning requirements which have led to 75% of new commercial developments with over 20,000m<sup>2</sup> floor space achieving at least a BREEAM 'Excellent' rating since 2014.



## HOW WE REMOVE CARBON FROM THE ATMOSPHERE

We look after over 11,000 acres of green spaces across London and its green belt. This equates to approximately 5,500 football pitches. This natural capital not only provides valued space for people and nature but also currently removes 16 ktCO<sub>2</sub> per year. This is equivalent to 40% of the City Corporation's scope 1 and 2 emissions.



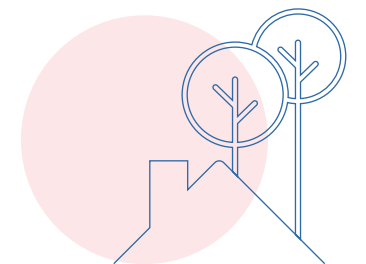
5,500

The equivalent of nearly 5,500 football pitches of green spaces across London and its green belt are managed by The City of London Corporation.

## BUILDING RESILIENCE

The City Corporation has long used our planning role to implement a range of resilience measures in the Square Mile. These include green roofs, urban greening, landscaping, flood resilience and climate resilient new buildings.

As of 2020, the Square Mile has 42,600m<sup>2</sup> of green roof, up from 11,200m<sup>2</sup> in 2005. This is set to increase to 65,800m<sup>2</sup> by 2024. The Square Mile has achieved a 55% reduction in Scope 1 and 2 emissions since 2008 (using data from 2018/19). This has been assisted by our ambitious planning requirements which have led to 75% of new commercial developments with over 20,000m<sup>2</sup> floor space achieving at least a BREEAM 'Excellent' rating since 2014.



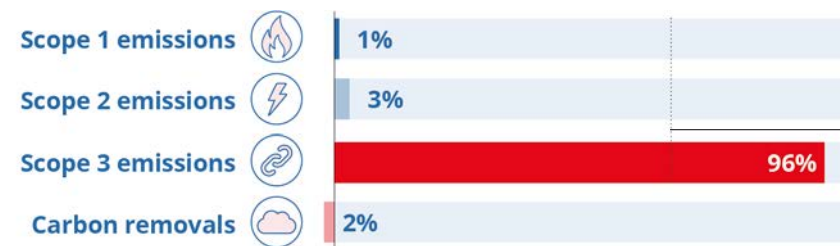
42,600m<sup>2</sup>

of green roof in the Square Mile.

## CHAMPIONING SUSTAINABLE GROWTH

The UK is the only global financial centre that is also a leading centre for green finance, topping both conventional and 'green' rankings. UK market players are committed to sustainable principles and the regulatory context is both favourable and innovative. The London Stock Exchange is the 'greenest' main stock exchange across all global financial centres. The UK was the first government to adopt a Green Finance Strategy, which was launched at the Guildhall alongside the Green Finance Institute. The UK is the leading destination for talent that is trained and skilled in sustainability matters. This allows us to lead and support other economies as they transition to net zero.

## City of London Corporation emissions

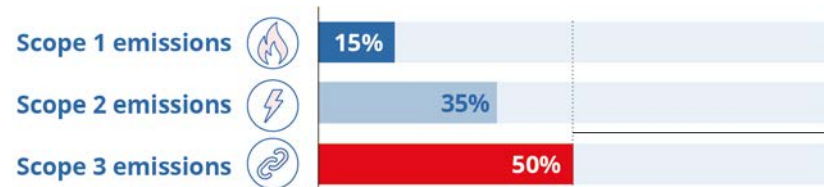


Following SBTi guidance, we need to reduce or remove

1,050 ktCO<sub>2</sub>e

of emissions to achieve net zero. This includes 100% of scopes 1 and 2 and 66% of scope 3.

## Square Mile emissions



We need to reduce or remove

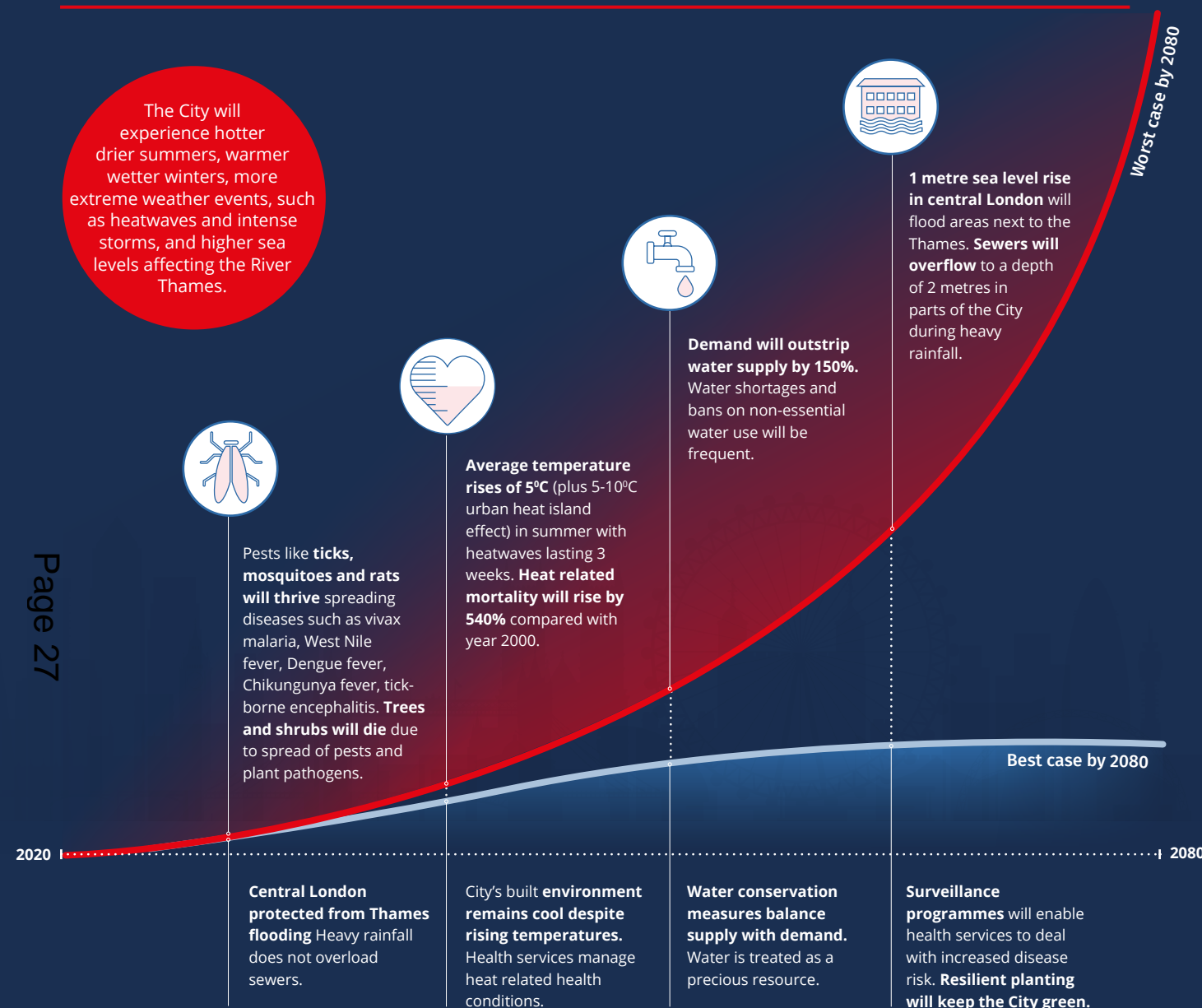
1,528 ktCO<sub>2</sub>e

to achieve net zero.





# Adapting to climate change



## Mitigations

Horizon scanning for pests and diseases.  
Climate resilient landscaping.

Adapting buildings and public realm to cope with higher temperatures.  
Public Health interventions to combat heat stress.

Building designs which prioritise water conservation.  
Water footprint management.

Flood Defence improvements.  
Urban greening to absorb rainwater before it gets to the sewers.

# Our climate vision, aims and goals

## Our Vision

The City of London is **Responsible, Sustainable and Competitive**

## Our aims



To **support** the achievement of net zero



To **build** climate resilience



To **champion** sustainable growth

## Our goals

### For the City of London Corporation

City of London Corporation **scope 1 and 2 emissions are net zero by 2027** and **scope 3 emissions are net zero by 2040.**

The City of London Corporation and its assets **are resilient to climate change.**

The City of London Corporation supports UK and overseas organisations to **become climate responsible.**



### For the Square Mile's fabric and function

The Square Mile's scope 1, 2 and 3 emissions (BASIC+ definition) **are net zero by 2040.**

The Square Mile's buildings, public spaces and infrastructure **are resilient to climate change.**



### For society

People in the Square Mile and beyond **benefit from a clean, green and safe environment** and **job creation.**





# The first six years

Our actions and the targets we set build upon our Responsible Business Strategy (2018 - 23) – “Towards a Sustainable Future”. They also reflect ongoing work in supporting innovation and growth in the financial and professional services sector. These actions relate to the first six years of the strategy. The strategy and action plan will then be refreshed for the next phase of implementation to achieve our 2040 goals.

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## Actions to support the achievement of net zero

### THE CITY OF LONDON CORPORATION

- Transform the energy efficiency of our operational buildings through the adoption of best available technologies
- Maximise the use of renewable energy sources across our operational buildings
- Introduce new land management practices across our open spaces aiming to maximise their ability to remove carbon, and optimise their biodiversity and resilience value
- Align our financial investment portfolio with the goals of the Paris Agreement on climate change
- Embed circular economy principles into our capital projects and reduce carbon intensity by using life cycle carbon and cost assessment techniques and design specifications
- Accelerate the move to net zero carbon and energy efficient tenanted buildings, working closely with tenants to achieve shared goals
- Strengthen our requirements and supplier engagement to drive performance and innovation in delivering sustainable products and solutions
- Upskill our workforce on net zero

### THE SQUARE MILE

- Work with other organisations to develop a Climate Action Fund to invest in effective zero carbon technologies and accelerate decarbonisation
- Develop a Square Mile renewable energy strategy
- Use our planning role to influence others to embed carbon analysis and circular economy principles in capital projects
- Advocate the importance of green spaces and urban greening as natural carbon sinks, and their contribution to biodiversity and overall wellbeing
- Support organisations in the Square Mile to build circular, low-carbon and resilient supply chains
- Provide tailored support to SMEs on their decarbonisation journeys
- Increase engagement and communications about sustainability with residents, businesses, visitors and other stakeholders



## Actions to build climate resilience

### THE CITY OF LONDON CORPORATION

- Build on our existing work to develop an early warning system, and clear resilience strategies for pests and diseases across our ports and markets, driving down the climate related food security risks
- Embed resilience measures into our upgrade plans for our owned and operated buildings
- Upskill our workforce on climate resilience
- Embed a climate resilience lens into all our decision-making

### THE SQUARE MILE

- Make the Square Mile public realm more climate change ready through adding in more green spaces, urban greening, flood resistant road surfaces, adaptable planting regimes and heat resistant materials
- Reduce the risk of flooding through developing sustainable rain and surface water management policies, resulting in a connected system of water recycling, sustainable urban draining and rainwater management measures
- Strengthen our planning guidance on climate resilience measures for new developments
- Work with our partners to create a more climate resilient and diversified energy network across the Square Mile
- Develop a strong, data-led approach to deepen our understanding of climate related risks and mitigations across the Square Mile
- Ensure that we continue to protect the residents, critical assets, infrastructure and heritage of the Square Mile



## Actions to champion sustainable growth

### THE CITY OF LONDON CORPORATION

- Mobilise capital into sustainable finance
- Secure the UK's place as a leader for investment in sustainable finance products
- Help faster development and adoption of sustainable finance products and services
- Share best practice on standards, tools, platforms and expertise to facilitate green and sustainable investment and growth
- Encourage global movement towards disclosure and production of credible transition plans as the norm
- Foster an ambition to achieve net zero emissions by 2050 or sooner for UK-based financial and professional services firms
- Join other investors working through development and implementation of net zero transition action plans
- Support financial institutions committing to net zero in the 2040s at the latest, covering all emissions, including scope 3 and where data allows reliable measurement
- Support charities and SMEs to consider, prepare for and lead the response to climate change
- Promote responsible procurement and investment practices.
- Enhance the UK/London's capacity to finance sustainable investment opportunities globally, including emerging markets
- Work with the financial services sector and UK Government to promote and scale sustainable finance products and services that countries and corporates need to help them transition to net zero
- Influence and support the delivery of technical solutions to increase comparability of data and ease of reporting
- Share learning and best practice about the challenges and opportunities of our net zero journey
- Address existing inequalities and ensure no one is left behind
- Prepare people for skills needed in a net zero economy
- Facilitate collaborative action on air pollution in London
- Reduce pollution and increase the resilience of the Square Mile
- Reduce air pollution through implementing our ambitious air quality and transport strategies
- Embrace circular economy principles across our strategies and work
- Work with our creative and educational sector partners to deliver sustainable initiatives
- Enhance greening and biodiversity across our public realm and open spaces



# Glossary

**BASIC+ definition** emissions include those from within the Square Mile from stationary energy, transportation and waste, as well as transboundary transportation, industrial processes and product use and the agriculture, forestry and land use sectors. It does not include emissions from investments.

**Carbon removal** is the process by which a carbon sink, such as forestry, reduces the amount of greenhouse gases in the atmosphere.

**Circular economy** means keeping resources in use for as long as possible, extracting the maximum value from them whilst in use, then recovering and regenerating products and materials at the end of each service life.

**Climate resilience** is the ability to anticipate, prepare for and respond to hazardous events, trends or disturbances related to climate (Centre for Climate and Energy Solutions).

**Ecosystem services** are benefits to humans from the natural environment and from healthy ecosystems.

**GHGs** means greenhouse gases - the emissions responsible for global warming. These include methane, nitrous oxide and fluorinated gases amongst others.

**ktCO<sub>2</sub>** is the unit of measurement for GHG emissions. It standardises greenhouse gases into units of kilo-tonnes of carbon dioxide equivalent (ktCO<sub>2</sub>e).

**A low-carbon economy** is simply an economy that causes low levels of GHG emissions compared with today's carbon-intensive economy. 'Carbon' refers to carbon dioxide, the GHG which contributes the most to climate change. The low-carbon economy can be seen as a step in the process towards a zero-carbon economy. (Science Direct)

**Natural capital** refers to the stock of natural resources, which includes geology, soils, air, water and all living organisms.

**Net zero emissions** are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period (Science Based Targets initiative (SBTi) and CDP, Towards a science-based approach to climate neutrality in the corporate sector, September 2019). N.B. Further guidance on the definition of net zero and its guiding principles are due later in 2020 from the SBTi.

**Science-based / Paris-aligned** (Science-Based Target Setting Manual, April 2020) GHG emissions reduction targets are considered "science-based" if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement (2015) - to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

**SMEs** refers to small and medium-sized enterprises.

**Scopes 1, 2 and 3 for an organisation:** (Defra Environmental Reporting Guidelines and the Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard, revised edition)

**Scope 1** (direct) means emissions from activities owned or controlled by your organisation that release emissions into the atmosphere. They are direct emissions. Examples of scope 1 emissions include emissions from combustion in owned or controlled boilers, furnaces, vehicles, emissions from chemical production in owned or controlled process equipment.

**Scope 2** (energy indirect) means emissions released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of your organisation's activities, but which occur at sources you do not own or control

**Scope 3** (other indirect) means emissions that are a consequence of your actions, which occur at sources which you do not own or control and which are not classed as scope 2 emissions. Examples of scope 3 emissions are business travel by means not owned or controlled by your organisation, waste disposal which is not owned or controlled, or purchased materials.

**Scopes 1, 2 and 3 for a city:** (GHG Protocol, Global Protocol for Community-Scale Greenhouse Gas Emission Inventories)

**Scope 1** means GHG emissions from sources located within the city boundary

**Scope 2** means GHG emissions occurring as a consequence of the use of grid-supplied electricity, heat, steam and/or cooling within the city boundary

**Scope 3** means all other GHG emissions that occur outside the city boundary as a result of activities taking place within the city boundary.



## About The City of London Corporation:

The City of London Corporation is the governing body of the Square Mile dedicated to a vibrant and thriving City, supporting a diverse and sustainable London within a globally successful UK.

We aim to:

- Contribute to a flourishing society
- Support a thriving economy
- Shape outstanding environments.

By strengthening the connections, capacity and character of the City, London and the UK for the benefit of people who live, work and visit here.



# City of London Corporation



## City of London Corporation Housing NZ Action Plan

August 2021 | Rev J





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# Executive Summary

## The Climate Action Strategy and Housing

The City of London Corporation (CoL) owns 5,028 residential units, across 82 different buildings, across 14 estates. These 14 estates are currently responsible for 11.2 ktCO<sub>2</sub>/yr (both landlord and tenant emissions).

The Corporation's Climate Action Strategy (CAS) commits to being net zero carbon by 2027 for the all Scope 1 and 2 emissions within the Corporation's control. For the housing stock, this encompasses all emissions associated with communal heating, lighting, lifts and any other landlord controlled energy. Currently, Scope 1 and 2 emissions from housing amount to 5 ktCO<sub>2</sub>/yr.

The CAS also commits the Corporation to being net zero carbon by 2040 for all emissions, including Scope 3 emissions. For the housing stock, this encompasses all landlord emissions (Scope 1 and 2) plus emissions associated with energy that tenants and leaseholders consume in their properties. Scope 3 emissions from CoL's housing stock amount to 6.2 ktCO<sub>2</sub>/yr.

## Achieving net zero carbon

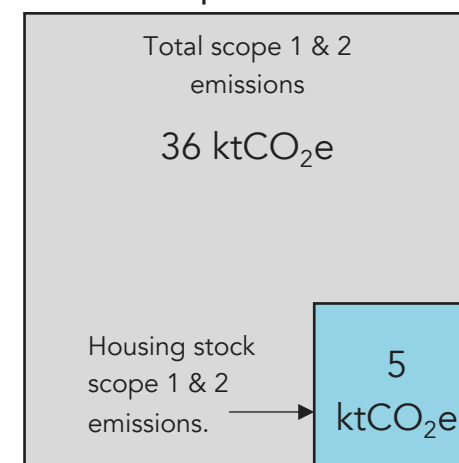
Achieving the Corporation's net zero carbon targets will require large reductions in CO<sub>2</sub> emissions from its homes. The target does not require individual homes to be net zero carbon, rather the Corporation as a whole.

The Corporation owns land based assets which sequester 16 ktCO<sub>2</sub>/yr (assessed by the University of Surrey) and wants to utilise this to balance emissions for the purposes of the Climate Action Plan targets.

In the scenarios discussed on the following pages, we have applied a proportional fraction of this sequestration to housing - 2.4 tCO<sub>2</sub>/yr as at 2027. The Corporation could choose to apply more or less than this.

Due to these direct Greenhouse Gas Removals, the Climate Action Strategy (CAS) target can be met through a 59.2% reduction in CO<sub>2</sub> emissions from the baseline. This study seeks to understand the potential of housing to be consistent with this reduction.

### Scope 1 & 2

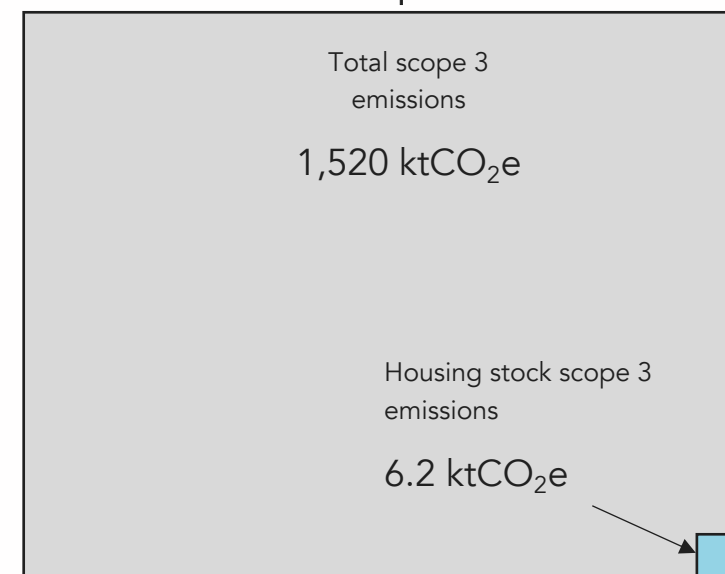


Current scope 1 & 2 emissions for the City of London Corporation, showing proportion attributed to housing stock in blue.

### Scope 1 & 2



### Scope 3



Current scope 3 emissions for the City of London Corporation, showing proportion attributed to housing stock in blue. Scope 1 and 2 emissions shown for scale.



# Executive Summary

## Achieving the 2027 target for Scope 1 and 2 emissions

The key priorities for reducing scope 1 and 2 emissions (emissions associated with energy controlled by the Corporation) will be:

- Stop using gas for communal heating as soon as possible
- Install roof insulation early
- Install as many photovoltaics on the roofs as possible (at the same time, or after, roof insulation).
- Make communal lighting more efficient – upgrade to LED lighting and review lighting controls for each estate.
- Review controls of energy systems – is there scope to improve controls of communal heating systems?
- Review, and replace if necessary, insulation on pipework of communal heating systems.

We have modelled the impact of the above retrofit actions on energy and CO<sub>2</sub> emissions in two scenarios:

**Scenario 1:** As above apart from the new gas communal heating at Middlesex Street Estate and York Way Estate, which would remain in operation in 2027.

In this scenario, at 2027, a 49% reduction in emissions is achieved from the 2020 baseline, (including a 11% reduction attributable to the installation of solar photovoltaic panels on housing stock).

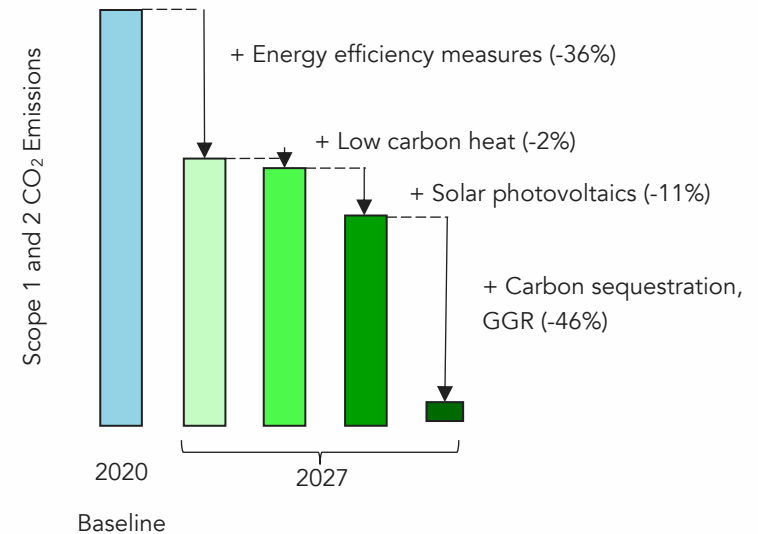
**Scenario 2:** As above – all gas communal heating replaced with communal Air Source Heat Pumps.

In this scenario, at 2027 a 61% reduction in emissions is achieved from the 2020 baseline, (including a 11% reduction attributable to the installation of solar photovoltaic panels on housing stock).

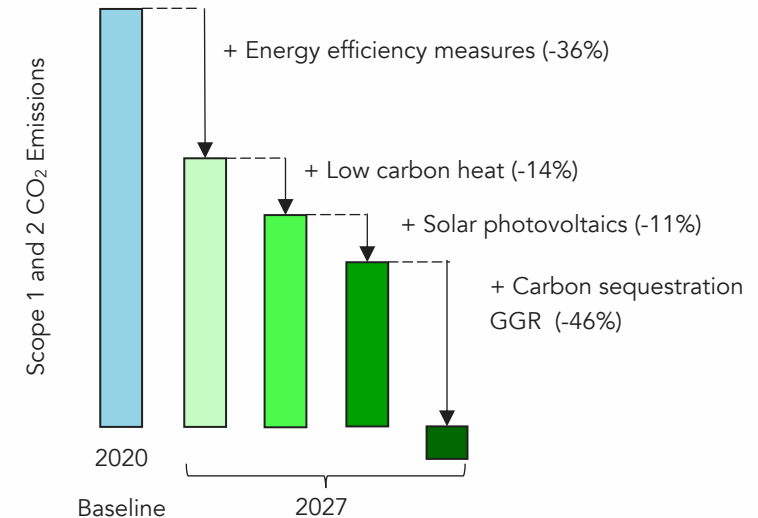
All remaining emissions are associated with imported grid electricity.

If we apply the direct greenhouse gas removals (GGR) from the Corporation's land based assets to scenario 2, the total emissions reduction is **107%** = carbon negative.

Scenario 1 - Total reduction (excluding GGR) = 49%



Scenario 2 - Total reduction (excluding GGR) = 61 %



Scope 1 and 2 CO<sub>2</sub> emissions reduction strategies to 2027. Figures suggest emissions are carbon negative by 2027 only if all gas communal heating is changed to Air Source Heat Pumps by 2027.



# Executive Summary

## Achieving the 2040 target for Scope 1, 2 and 3 emissions

The key priorities for reducing Scope 3 emissions (from energy controlled by tenants, leaseholders and the Corporation) will build on the actions taken for Scope 1 and 2 emissions (landlord), and will be:

- Remove individual gas boilers in all properties and replace with low carbon heating alternatives.
- Improve the energy efficiency of the fabric of the buildings through:
  - Replacing windows with triple glazing,
  - Installing wall insulation where possible (the type will be dependant on the building),
  - Install roof insulation (where not already undertaken for 2027 target),
- Improve air-tightness of homes to avoid unnecessary heat loss through leaky buildings,
- Install floor insulation,
- Improve ventilation – preferably through whole dwelling mechanical ventilation with heat recovery,
- Install waste water heat recovery to showers and baths.

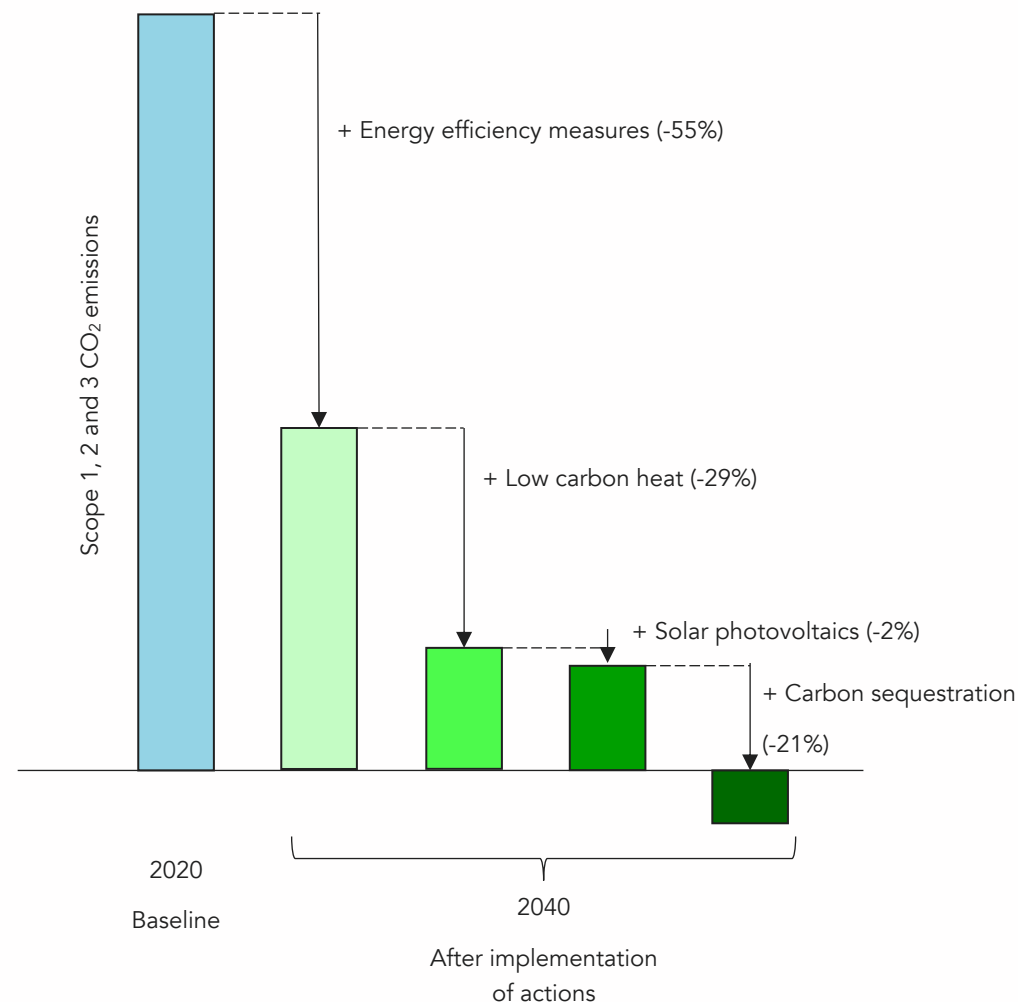
These measures apply both to existing and new build dwellings.

We have modelled the impact of the above retrofit actions, plus the actions to tackle Scope 1 and 2 emissions, on energy and CO<sub>2</sub> emissions. This includes future emissions from known new-build dwellings. Assuming all measures are undertaken, at 2040 14% of emissions remain (from the 2020 baseline). All remaining emissions are associated with imported grid electricity.

If we apply the direct greenhouse gas removals from the Corporation's land based assets, the net zero carbon target is achieved, with 107% emissions reduction – slightly carbon negative.

Should the Corporation target lower emissions reductions, we would recommend that land based sequestration isn't used to balance emissions from gas consumption.

Total reduction (excluding GGR) = 86 %







Scope 1, 2 and 3 CO<sub>2</sub> emissions reduction strategy to 2040. Provisional figures suggest emissions are practicably carbon negative by 2040 (figures to be checked and verified).

Note: solar photovoltaics have an apparently small impact due to the low carbon intensity of the grid electricity they are offsetting. However, they do provide a vital contribution of renewable electricity to the grid upon which the total reductions rely.



# Executive Summary




## Actions for helping achieve the 2027 target for Scope 1 and 2 emissions

Action	By	Priority buildings / estates	Rationale
<div>  <p>LOW CARBON HEAT</p> </div> <p>Stop using gas for heating as soon as possible</p>	2026	All buildings – especially large estates: Middlesex Street Estate York Way Estate	<p>It is acknowledged that the UK (and the rest of the world) needs to make a complete transition away from gas. If the Middlesex Street and York Way Estates remain on communal gas boilers, the Corporation's 2027 net zero carbon target will need to rely on increased emissions reductions from others sectors.</p> <p><b>Co-benefits:</b> Large reduction in carbon emissions by 2027, benefitting the overall aim of the Climate Action Strategy.</p>
<div>  <p>DEMAND FLEXIBILITY</p> </div> <p>Install hot water storage in individual units where heating systems are changed</p>	2026	All where heating is changed to low carbon heat sources	<p>Hot water storage can be used to reduce peaks in heat system demand or to store energy by heating hot water when the grid has an oversupply to use later. This is particularly useful for dwellings using direct electric heating methods, to reduce heating bills and the peak load on the electricity network but is also useful where Heat Pumps are used.</p> <p><b>Co-benefits:</b> Hot water storage allows the occupant to take advantage of cheap electricity if using a flexible tariff.</p>
<div>  <p>ENERGY EFFICIENCY</p> </div> <p>Install roof insulation early</p>	2026	Avondale Square Estate Holloway Estate York Way Estate Middlesex Street Estate	<p>Roof insulation is an important (and often relatively simple) retrofit measure. It should be installed before, or at the same time as, photovoltaic panels.</p> <p>Some buildings have greater capacity for renewable energy generation. These should be prioritised and are listed here (left).</p> <p><b>Co-benefits:</b> Reduced energy bills. Less risk of damp and mould, which can cause health problems for occupants.</p>
<div>  <p>RENEWABLE ENERGY</p> </div> <p>Install as many photovoltaics on the roofs as possible (at the same time, or after, roof insulation).</p>	2026	Avondale Square Estate Holloway Estate York Way Estate Middlesex Street Estate	<p>Photovoltaic panels produce renewable energy that displaces grid electricity and contributes to reducing its carbon intensity. Priority estates have been selected for their optimal roof space and consequently their significant renewable energy generation potential.</p> <p><b>Benefits:</b> Can generate income and potentially reduce bills.</p>



# Executive Summary






## Actions for helping achieve the 2027 target for Scope 1 and 2 emissions (continued)

Action	By	Priority buildings / estates	Rationale
Make communal lighting more efficient – upgrade to LED lighting and review lighting controls for each estate.  ENERGY EFFICIENCY	2026	Barbican Estate CoL Almshouses Gresham Almshouses	Some estates have large landlord electricity consumption relative to others (see left).  <b>Co-benefits:</b> Reduced energy bills. Can be passed onto occupants.
Review controls of energy systems – is there scope to improve controls of communal heating systems.  ENERGY EFFICIENCY	2026	Middlesex Street Estate York Way Estate Isleden House Estate	All communally heated estates (except Frobisher Crescent on the Barbican Estate) use approximately double the gas per dwelling compared with comparable homes on other estates which have individual heating systems. This indicates significant energy may be being lost in the distribution networks and poor controls, e.g. too high flow temperature or residents leaving heating on either when they are not on the premises or when they are but they open the windows rather than turn heating down/off. A number of residents right across the stock, and particularly at the Middlesex Street Estate, reported having to open their windows in winter to avoid overheating.  Despite having triple glazing, the Middlesex Street Estate uses the most gas per dwelling of all communally heated estates, suggesting it has poor controls or high distribution heat loss or both. Large estate – 281 dwellings.  York Way Estate is a large estate with 278 dwellings. 30-year old double glazing should also be changed as a priority.  <b>Co-benefits:</b> Reduced energy bills. Improved occupant health and comfort through reduction in overheating.
Review, and replace if necessary, insulation on pipework of communal heating systems.  ENERGY EFFICIENCY	2026	Middlesex Street Estate York Way Estate Isleden House Estate	



# Executive Summary






## Actions for helping achieve the 2040 target for Scope 3 emissions

Action	By	Priority buildings / estates	Rationale
Continue to remove individual gas boilers in all properties and replace with low carbon heating alternatives and install hot water storage where there is none  <b>LOW CARBON HEAT</b>  <b>DEMAND FLEXIBILITY</b>	2032	All	<p>All gas heating should be replaced by low carbon heating in all properties, as evidenced by the Housing London Retrofit Action Plan. Cumulative carbon emissions must be limited to stay within carbon budgets, therefore planning must start immediately to make all properties low carbon heat ready. Replacements should happen as soon as possible and should always include the installation of hot water storage wherever possible.</p> <p><b>Co-benefits:</b> Improved local air quality. Improved health and safety through removal of gas connection and associated risks.</p>
Replacing windows with triple glazing  <b>ENERGY EFFICIENCY</b>	2032	All properties with single glazing or older, poor double glazing	<p>Improved glazing has a big impact on heat loss and comfort. Cold, draughty windows were one of the biggest complaints from the resident engagement. The surface temperature of triple glazing remains warmer than single glazing, therefore the perceived temperature is higher and the internal air temperature can be lower to achieve the same 'comfort' perception, saving more on heating energy than the simple uplift in insulation achieves.</p> <p><b>Co-benefits:</b> Improved comfort, lower energy bills. Reduces risk of damp and mould an associated health problems. Better acoustic performance.</p>
Improve air-tightness of homes to avoid unnecessary heat loss through leaky buildings (infiltration)  <b>ENERGY EFFICIENCY</b>	2032	All properties.	<p>Consider not only around windows and window frames, but also doors, letterboxes, fire escapes, ventilation ducts and pipework entering the dwelling and also the main building envelope junctions especially roof eaves. Heat lost through air leakage can be very significant.</p> <p><b>Co-benefits:</b> Improved comfort, lower energy bills and in combination with the introduction of improved mechanical ventilation (see next point), improved indoor air quality</p>
Improve ventilation – preferably through whole dwelling mechanical ventilation with heat recovery (MVHR)  <b>ENERGY EFFICIENCY</b>	2032	Any property that undergoes window upgrades.	<p>Ventilation is important for air quality and removal of moisture build up in the air. Uncontrolled infiltration as described in the point above, can give the impression that a room is ventilated, but the quality of the air and the distribution of it is usually poor. Whole dwelling MVHR provides essential ventilation without the heat loss experienced through opening windows or "leaky" buildings. Windows can still be opened in the summer.</p> <p><b>Co-benefits:</b> Improved comfort, improved indoor air quality, lower energy bills.</p>



# Executive Summary

## Actions for helping achieve the 2040 target for Scope 3 emissions (continued)

Action	By	Priority buildings / estates	Rationale
Installing wall insulation where possible (type dependant on building).  ENERGY EFFICIENCY	2032	Properties with high ratio of external wall to internal area.	To achieve low levels of space heating demand, wall insulation may be necessary, especially on blocks with high external surface area relative to the internal floor area, such as top floor and ground floor flats, end flats and end of terrace houses and blocks with external 'deck' access.  <b>Co-benefits:</b> Lower energy consumption (and bills), reduced risk of mould and damp and associated health problems.
Install roof insulation (where not already undertaken for 2027 target).  ENERGY EFFICIENCY	2032	All	Uninsulated roofs can present comfort and heat loss problems, especially for top floor units.  <b>Co-benefits:</b> Improved comfort. Reduced energy consumption (and bills) less risk of damp and mould and associated health problems.
Install floor insulation  ENERGY EFFICIENCY	2038	All	Uninsulated floors can present comfort and heat loss problems, especially in ground floor units.  <b>Co-benefits:</b> Improved comfort, less risk of damp and mould.
Install waste water heat recovery to showers and baths.  ENERGY EFFICIENCY	2038	All	Hot water is often a substantial energy use in homes, and it becomes more significant as the fabric performance is improved. Measures to reduce hot water usage are difficult to introduce, especially in existing buildings. Recovering heat from the water going into the drains and using it to pre-heat cold water feeding hot water storage cylinders can have a useful impact on this hard-to-treat energy consumption.  <b>Co-benefits:</b> Lower energy bills. Reduction in peak electricity demand.
Improved appliances  ENERGY EFFICIENCY	2038	All	One of the key energy users in the Scope 3 emissions is the kitchen appliances that tenants use. A policy to encourage the selection of better performing appliances as and when old ones are replaced will help to reduce electricity consumption across the estate.  <b>Co-benefits:</b> Lower energy bills. Reduction in peak electricity demand.



# 1.0 Achieving Net Zero

## Why and how?

This section provides an overview of the context in which this net zero carbon action plan sits. It includes:

- Its relationship with the City of London Corporation's Climate Action Strategy and the London Retrofit Action Plan commissioned by London Councils.
- Core principles of low carbon retrofit
- The types of retrofit measures that might be required for the housing stock.
- Where our energy will come from in the future.



# City of London's Climate Action Strategy

## Why a net zero carbon action plan for housing?

This report presents an action plan for the retrofit of the City of London Corporation's (CoL) housing stock, in response to its net zero carbon targets outlined in the Climate Action Strategy.

The Corporation has committed to four overarching targets:

- Net zero by 2027 for the City Corporation's operations
- Net zero by 2040 for the City Corporation's full value chain
- Net zero by 2040 in the Square Mile.

Climate resilience in its buildings, public spaces and infrastructure.

## How the Net Zero by 2027 target relates to housing

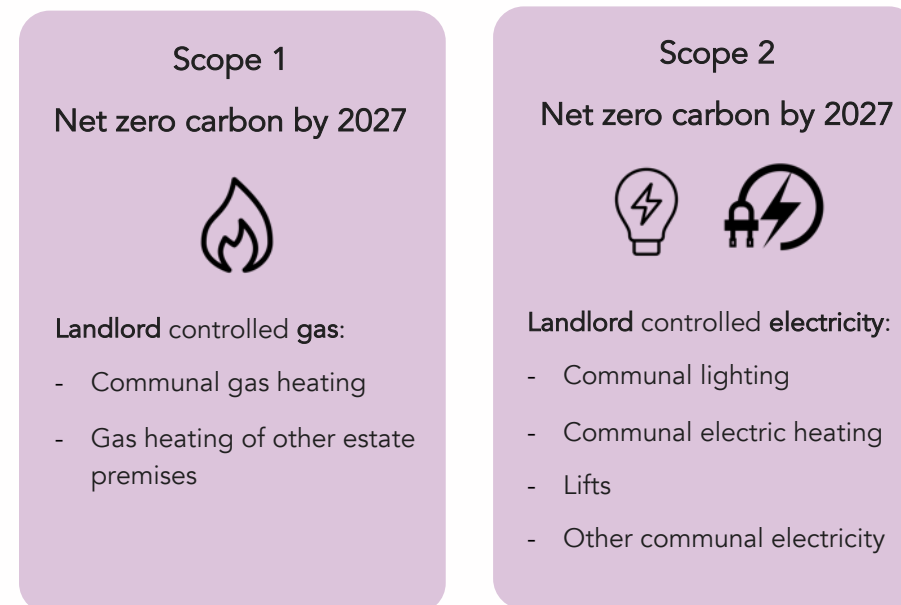
Scope 1 emissions are all emissions associated with fossil fuels combusted by the Corporation (e.g. gas, petrol and diesel).

Scope 2 emissions are all emissions associated with electricity used directly by the Corporation.

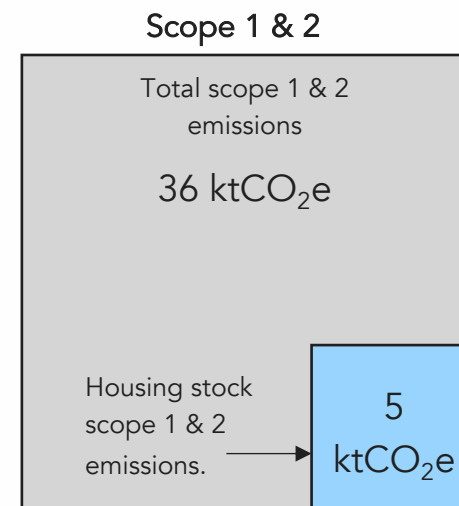
Total Scope 1 and 2 emissions were assessed by ARUP to be 36 ktCO<sub>2</sub>e in 2018.

In the context of CoL's **housing** portfolio, scope 1 and 2 emissions include:

- Communal heating and hot water provided to homes
- Heating of community centres, estate offices, or other ancillary functions of the housing estates.
- Emissions associated with shared spaces such as lighting and lifts.
- We estimate Scope 1 and 2 emissions from **housing** to be 5 ktCO<sub>2</sub>e in 2020, representing 14% of the Corporation's total Scope 1 and 2 emissions.



Scope 1 & 2 emissions in the context of this Housing Net Zero Action Plan



Current scope 1 & 2 emissions for the City of London Corporation, showing proportion attributed to housing stock in orange.



# City of London's Climate Action Strategy

## How the net zero by 2040 target affects housing

City of London Corporation also has a target of achieving net zero carbon for all its Scope 3 emissions by 2040.

Scope 3 emissions are all other emissions associated with the Corporation's activities or assets - e.g. purchased goods and services, business travel, commuting, waste, leased buildings (emissions from tenants or leaseholders fuel consumption) and financial investments.

Total Scope 3 emissions were assessed by ARUP to be 1,520 ktCO<sub>2</sub>e in 2018.

In the context of CoL's **housing** portfolio, scope 3 emissions include:

- Resident purchased energy for heating, hot water, lighting, appliances or any other energy used in the home (including both tenants and leaseholders).

We estimate Scope 3 emissions from **housing** to be **6.2 ktCO<sub>2</sub>e** in 2020, representing 0.5% of total scope 3 emissions.

## Carbon accounting for the 2040 target

The Science Based Targets Initiative (SBTi) require only two thirds of Scope 3 emissions need be included in the net zero target committed to by the City of London Corporation. Emissions stated on this page do not include this reduction.

Our estimates of Scope 3 CO<sub>2</sub> emissions only include this reduction when explicitly stated for projected emissions in 2040.

## Carbon sequestration

The City of London Corporation own land based assets that have been separately assessed\* to sequester 16 ktCO<sub>2</sub> from the atmosphere every year. The Climate Action Strategy targets allow a proportion of this sequestration to be used as an offset to total operational Scope 1 and Scope 2 emissions.

\*Final Report WG5A - Sequestration Potential of the City of London's Open Spaces, 24 July 2020.

## Scope 3 – Housing Zero carbon by 2040



### Resident purchased energy:

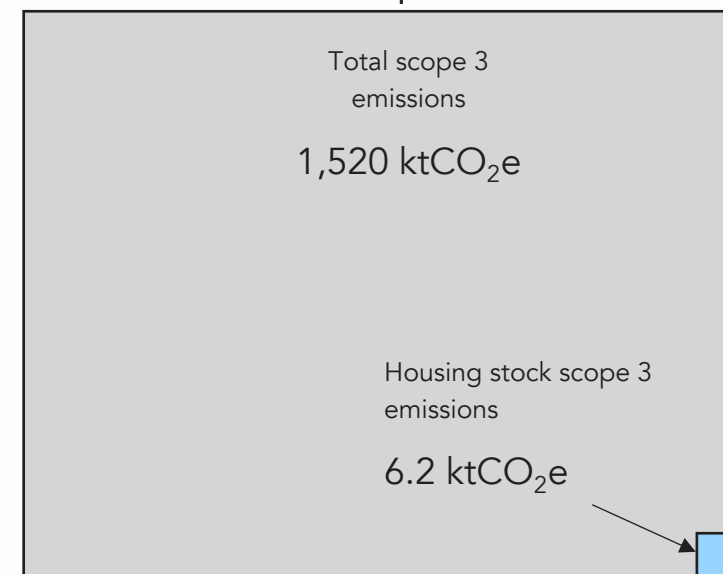
- Gas or electric heating
- Lighting
- Appliances
- Cooking

Scope 3 emissions in the context of this Housing Net Zero Action Plan

## Scope 1 & 2



## Scope 3



Current scope 3 emissions for the City of London Corporation, showing proportion attributed to housing stock in orange. Scope 1 and 2 emissions shown for scale.



# Link with the London Retrofit Housing Action Plan

## The Retrofit London Housing Action Plan

The Retrofit London Housing Action Plan is a project funded by a combination of London Councils, the London Housing Directors' Group, Greater London Authority and LEDNet. It considers all housing in London, not just the housing stock managed by respective councils. It recommends nineteen actions and activities across four different themes:

- Technical: retrofit measures, packages and plans
- Delivery models, skills and supply chain
- Costs, finance and funding
- Engagement and communication

The Retrofit London Housing Action Plan provides information on current best practice in London and beyond and sets a number of principles which could underpin any retrofit action plan.

## The two Action Plans are complementary

This Action Plan, specific to the City of London Corporation's housing stock, builds upon the technical recommendations within the Retrofit London Housing Action Plan. It is intended to be complementary to that report, and to be read alongside it.

The City of London Corporation is actively involved with the Retrofit London Housing Action Plan, therefore we have signposted its recommendations instead of repeating the relevant information. We recommend referring to it for wider context and higher level recommended actions.

## The wider context

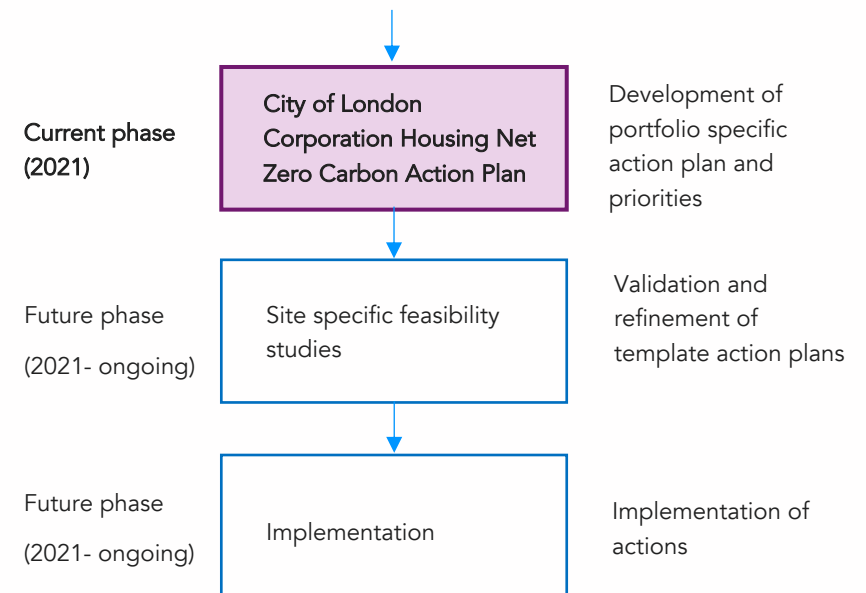
The City of London Housing Net Zero Action Plan offers retrofit templates, or starting points, for six different archetypes which typify CoL's housing stock. These "template" action plans can be used as a starting point from which to build site specific feasibility studies and refined, detailed implementation plans.

Retrofit London Housing Action Plan



Draft completed  
(2021)

*The Retrofit London Housing Action Plan is a 70-page report. It has been led by London Councils with input from the 32 London boroughs and the City of London.*



*The City of London Corporation Housing Net Zero Carbon Action Plan is an important step in the journey to zero carbon housing stock.*



# Link with the London Housing Retrofit Action Plan

## Actions from the Retrofit London Housing Action Plan

This Housing Net Zero Action Plan for the City of London Corporation directly addresses nine of the nineteen actions recommended by the London Housing Retrofit Action Plan.

This Action Plan addresses, in part, all of the technical recommendations outlined in section 1 of the London Housing Retrofit Action Plan.

We have identified packages of energy efficiency measures, including ventilation strategies, and identified priority blocks and buildings to tackle. Specifications are suggested, but detailed feasibility studies and design packages will need to be created at a later stage.

Low carbon heat strategies applicable to archetypes are identified. Solar photovoltaic generation potential has been quantified.

Current maintenance and replacement programmes have been identified, and recommendations made to capitalise on these planned measures, some of which are already funded.

An approximate cost of retrofit for the housing portfolio has been identified, together with potential funding. The gap between funding and anticipated costs has been estimated.

The other ten actions from the London Housing Retrofit Action Plan are all very important to facilitate effective retrofit, and we recommend that the Corporation progresses all actions within it where possible.

Retrofitting measures, packages and plans		
1	Improve the envelope of London's inefficient homes	<input checked="" type="checkbox"/>
2	Develop a plan for retrofitting ventilation systems to improve health and air quality	<input checked="" type="checkbox"/>
3	Electrify heat	<input checked="" type="checkbox"/>
4	Deliver smart meters and demand flexibility (controls, storage) in retrofitted homes	<input checked="" type="checkbox"/>
5	Increase solar energy generation on London homes	<input checked="" type="checkbox"/>
6	Map out each building's journey towards lower energy costs and Net Zero	<input checked="" type="checkbox"/>
Delivery models, skills and supply chain		
7	Review current maintenance programmes and identify retrofit opportunities	<input checked="" type="checkbox"/>
8	Facilitate procurement of materials and services at a larger scale	
9	Enable planning to facilitate low carbon retrofit, including in conservation areas	
10	Develop retrofit skills actively across London	
11	Set up a clear and consistent system to report and monitor progress (and success)	
Costs, funding and finance		
12	Establish cost of retrofit, business case and funding gap for the different tenures	<input checked="" type="checkbox"/>
13	Maximise capital finance for council owned stock (and eligible homes)	<input checked="" type="checkbox"/>
14	Create a 'Finance for retrofit' taskforce with finance experts	
15	Support the owner occupier and PRS sectors to leverage private investment	
Engagement and take-up		
16	Social housing: engage with tenants, leaseholders and other registered providers	
17	Engage with owner occupiers and the Private Rented Sector	
18	Lobby Central Government for more support, guidance and funding	
19	Continually develop and implement the Action Plan together	



# Core principles of low carbon retrofit

## Energy efficiency

Buildings use energy for heating, hot water, ventilation, lighting, cooking and appliances. The efficient use of energy reduces running costs and carbon emissions. It also reduces a building's impact on the wider energy supply network, which is also an important consideration. Improving energy efficiency relies on the replacement of windows with more efficient ones, a better level of insulation and airtightness for the building fabric and also controlled ventilation, ideally with heat recovery, to ensure air quality and avoid condensation issues.

## Low carbon heating

Low carbon sources of heat are an essential feature of Net Zero carbon buildings. Existing buildings need to start to undergo a transition away from gas. The most likely solutions will use electrical heating systems, such as heat pump systems, electric radiators or storage heaters.

## Renewable energy generation

The roofs of buildings should be utilised as far as possible for photovoltaic panels which will generate renewable electricity.

## Other key considerations

- **Demand flexibility:** with electricity being used more and more to meet heating demand and with more renewable electricity being generated locally, the ability of a dwelling to manage demand with more flexibility is becoming important.
- **Avoiding carbon offsets:** a sustainable Net Zero carbon strategy should not use carbon offsets to allow continued greenhouse gas emissions. The Climate Change Committee is clear that offsets should be reserved to 'hard-to-decarbonise' sectors such as aviation and agriculture. Offsets should therefore be avoided or considered only as a stepping stone. The Climate Action Strategy does not support the use of offsetting mechanisms other than including its own land based assets carbon sequestration potential.

## Category

## Measure



### Energy efficiency

Double or triple-glazed windows

Insulation (wall, roof, floor)

Airtightness

Ventilation (e.g. MVHR)



### Low carbon heat and no more fossil fuels

Individual heat pumps

Communal heat pumps

Direct electric



### Demand flexibility

Energy storage

Smart energy controls



### Renewable energy generation

Solar PVs

*Summary of key retrofitting measures which the London Home Retrofit Action Plan should seek to deliver*



# Moving away from gas boilers is critical

## Carbon budgets and cumulative carbon

The Climate Change Committee (CCC) have been very clear that the use of fossil fuels has to be eliminated in virtually all buildings by 2050.

A carbon budgets approach helps us to understand the impacts of the pace of change between now and 2050 and is imperative if we are to meet our obligations under the Paris Agreement in limiting global temperature rises to no more than 2C.

Carbon budgets take into account the effect of cumulative CO<sub>2</sub> emissions in the atmosphere. Cumulative emissions are proportional to global temperature rises. The Tyndall Centre for Climate Change has taken a Paris aligned global carbon budget and used it to derive a carbon budget for the UK and all the Local Authorities within it.

According to this analysis, London's remaining carbon budget is 204 MtCO<sub>2</sub>. Meeting the budget must not rely on carbon offsets.

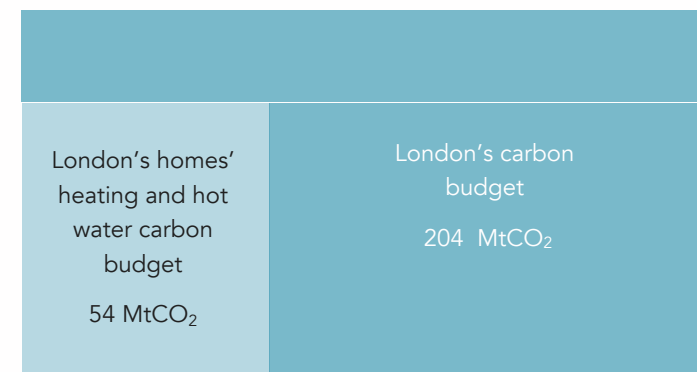
## EA – No new gas boilers from 2025

The International Energy Agency Net Zero report (2020) also states that all buildings must be zero carbon and that there should be no new gas boilers sold after 2025. This is an important message and signals clearly that the City of London Corporation should be preparing to enable all of their properties to switch to low carbon heat imminently.

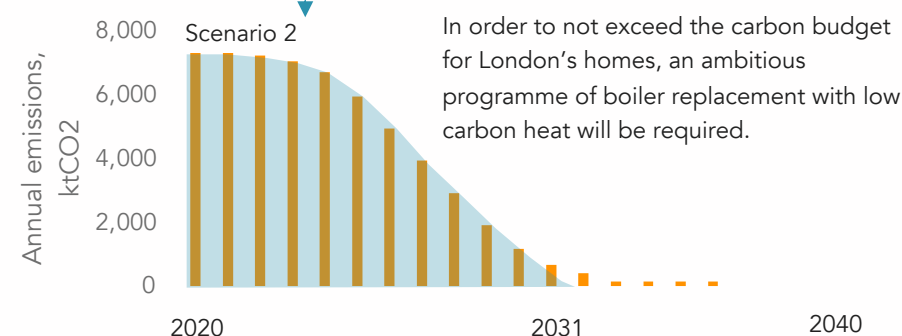
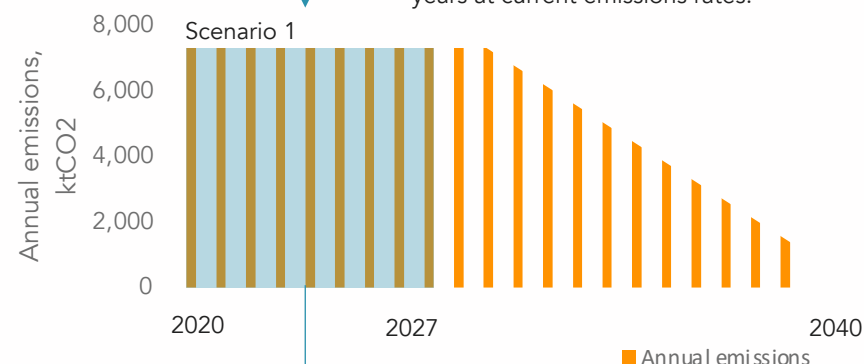
## What this means for CoL's housing stock

Net zero carbon for the City of London Corporation's own emissions by 2027 is the right target. This target will require CoL to replace all communal gas fired boilers with low carbon heat alternatives, such as heat pumps or other electric heating systems as soon as possible.

Concurrently, CoL should prepare their housing stock in order that each estate is ready for low carbon heat (e.g. through improving energy efficiency) and tenants and leaseholders should be provided with the information they need to make informed choices about when and how to make the swap.



If we compare the carbon budget for homes with the current emissions of domestic gas boilers, we see that the carbon budget is consumed within 7 years at current emissions rates.



In order to not exceed the carbon budget for London's homes, an ambitious programme of boiler replacement with low carbon heat will be required.



# The electricity revolution and infrastructure

## Towards a decarbonised and smarter electricity system

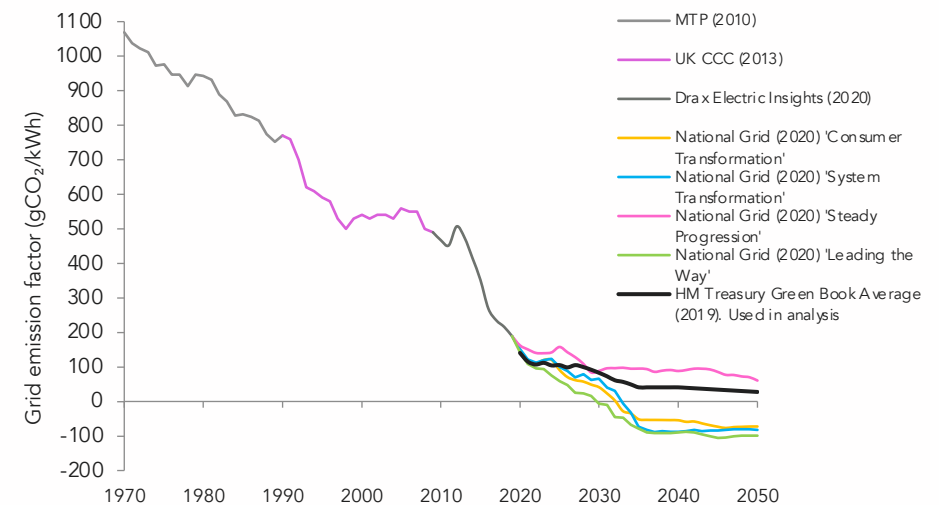
The carbon content of electricity has fallen over the last few years. It is now three times less than 10 years ago and already lower than natural gas. It is forecasted to continue to reduce even further in the next 20-30 years. This underpins the current energy revolution and is why **electrification of transport and heat** is now seen as the best strategy to move away from fossil fuels.

## Infrastructure Upgrades are Required

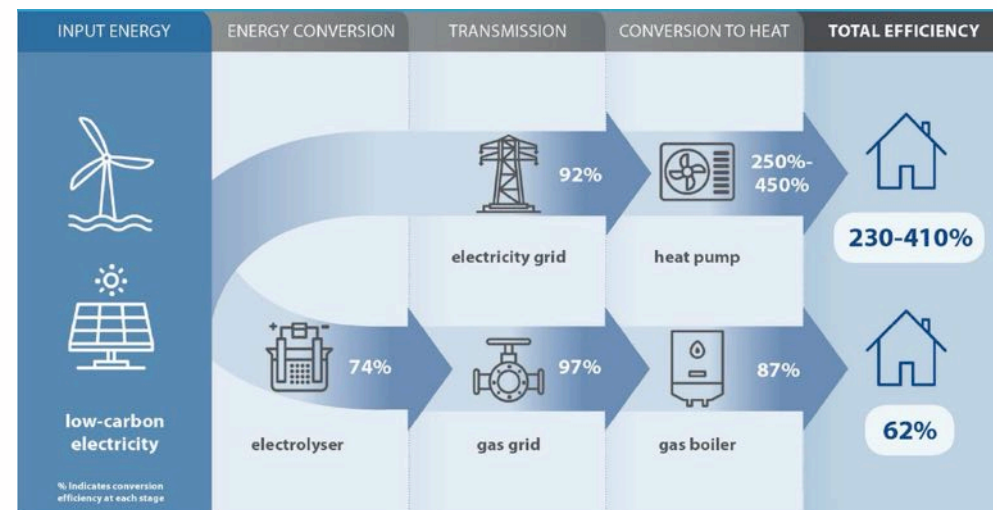
In order for this revolution to be successful and as cost effective as possible, it is very important to reduce energy use, so that energy demand is not more than renewable and nuclear energy can generate in 2050. The power network locally also needs to be adapted to be able to accommodate both more load and also local generation from roof mounted PV arrays. UKPN, the local District Network Operator, are investing in the infrastructure to make it more suited to the developing needs, but they have to have a clear policy basis to demonstrate to Ofgem, the regulator, that the investments they make are supported by demand. Especially for the large sites, a clear statement of timescales and objectives will allow UKPN to plan the work necessary to make it possible. Demand also needs to be flexible, so that energy is used at times of high renewable energy generation. Energy storage (e.g. hot water tanks) and management (e.g. smart controls) as well as smart meters for Time of Use (ToU) variable electricity tariffs are therefore all likely to become increasingly important.

## Hydrogen is unlikely to be a solution for heating homes

Hydrogen is not expected to be widely available at the domestic scale, certainly before 2030 and possibly not before 2050. There are remaining uncertainties about how it will be produced and stored, and the impact of these choices on overall energy use, carbon emissions and crucially, what the costs will be for consumers.



Long-term variations in emission factor of grid electricity show the rapid historical reduction in emission factors. © Etude based on data from Market Transformation Programme, UK Committee on Climate Change, Drax, National Grid and HM Treasury.



Relative heating efficiency – heat pumps vs electrolytic hydrogen boiler. From Committee on Climate Change Report, "Hydrogen in a Low Carbon Economy", 2018



# Controls, smart meters and electricity demand flexibility

## A sustainable electricity supply network.

The steep reduction in the carbon intensity of electricity in the UK has been achieved by significantly increasing the renewable energy contribution, especially from off-shore wind and solar. These intermittent, weather dependent sources have displaced high carbon, steady output coal fired power stations. For this process to continue and to be sustainable, it is necessary for the demand to be managed to match the supply in a way that wasn't previously necessary.

Energy prices fluctuate rapidly every day as supply goes up and demand goes down and vice versa. Time of Use tariffs have been commercially available for some years and are now becoming available to domestic customers. These tariffs track the energy price on an hourly or half hourly basis. If customers are able to reduce their use when prices are high (demand is outstripping supply) and increase it when they are low (oversupply on the grid), then customers can pay substantially less for their energy, on average.

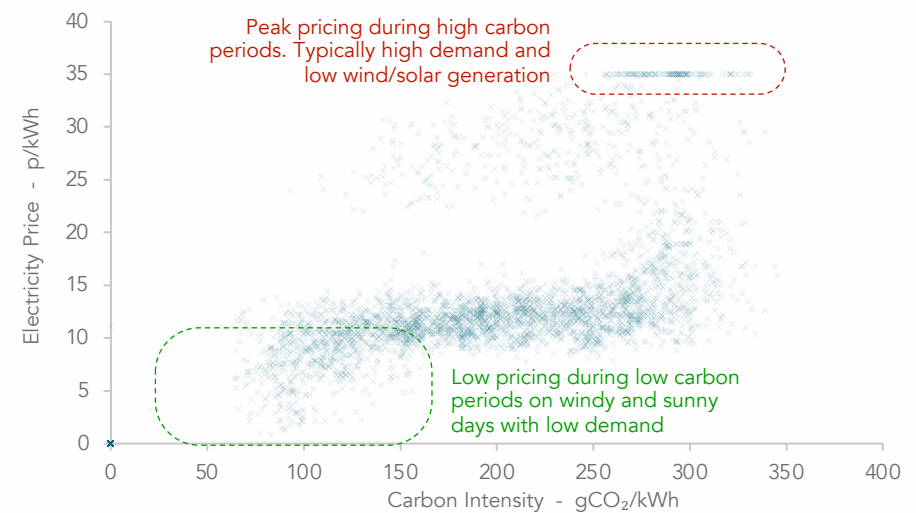
## Thermal stability & smart controls

Reducing the rate of heat loss from homes reduces the annual cost of heating and also makes it possible for the residents to utilise more effective 'Time of Use' fuel tariffs, such as Economy 7, by ensuring that when the heating is switched off, the home retains warmth for longer. Better controls and smart thermostats are essential (see image on the right), alongside clear information on how to use the new heating systems to achieve the best energy efficiency and lowest running costs.

## The benefits of hot water storage

The facility to store energy, most simply as heat in domestic hot water cylinders, is also a crucial part of demand management strategies.

Batteries can also form part of demand management, and can be charged from the grid at times electricity is cheap, but the capital costs are relatively high, per unit of energy stored.




**Electricity costs:** The carbon intensity and price of electricity vary depending on the balance between supply and demand. Chart shows price vs carbon intensity in London, at half hour intervals over 3 years from 2018 to 2021. Source [www.energy-stats.uk/download-historical-pricing-data](http://www.energy-stats.uk/download-historical-pricing-data)



**Smart Buildings:** Smart meters and smart thermostats are a way of unlocking the power of "agile" tariffs and demand side management to provide affordable low carbon heating. Used in combination with services such as If This Then That (IFTTT) they empower users to access cheap low carbon electricity, while helping the National Grid to balance the network.



## 2.0 Understanding the buildings and choosing the right measures



This section looks at what we have learned about the City of London Corporation's housing stock. It also looks at how we have used this understanding to develop "archetypes" for the application of retrofit of energy efficiency measures, how we have determined the low carbon heating strategy, and our approach to determining renewable energy potential.



# Simple overview of the City of London Corporation's housing stock

## Number of units

The City of London Corporation is responsible for 5,028 homes across 82 buildings and 14 different estates, spread over a wide geographical area of London.

## Building height

There are a wide variety of different buildings - 39 low rise (1-4 storeys), 19 mid rise (5-9 storeys), and 24 high rise (10+ storeys) of which there are 7 towers of 19+ storeys.

## Building age

9 blocks are pre-1920, 7 are 1921-1945, 41 are 1945-1970, 22 are 1971-1991 and 2 are post 1991.

## Special status

727 dwellings are within Grade II or II\* listed buildings – predominantly across the Barbican and Golden Lane Estates, but also on the Sydenham Hill estate.

## Leasehold and social rented

The units are a mixture of social rented, leasehold and a small proportion of freehold.

The majority of residents are tenants across the estates, with 20-50% of units owned by leaseholders. The Barbican Estate is almost entirely occupied by leaseholders.



City of London Almshouses



Otto close



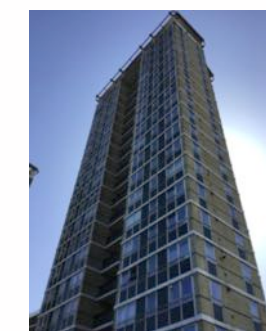
Lammas Green, Sydenham Hill Estate



Hatfield House, Golden Lane



Frobisher Crescent, Barbican Estate



Centre Points, Avondale Square Estate



# The housing stock's carbon footprint

## Total carbon emissions

We have utilised domestic gas and electricity data meter data from BEIS (aggregated by postcode for anonymity). Utilising this together with housing stock information we are able to estimate relative energy efficiency of different blocks. It also enables us to estimate Scope 3 CO<sub>2</sub> emissions, which are estimated to have been 6.2 ktCO<sub>2</sub> in 2020.

## Space heating demands

We have also used the above data to understand the average space heating demands of each home in each block. These are useful as they allow us to understand what decarbonisation measures will be suitable for each block. They also allow us to plot each block on the "The Retrofit Map" explained at the end of this section.

## Landlord's emissions only

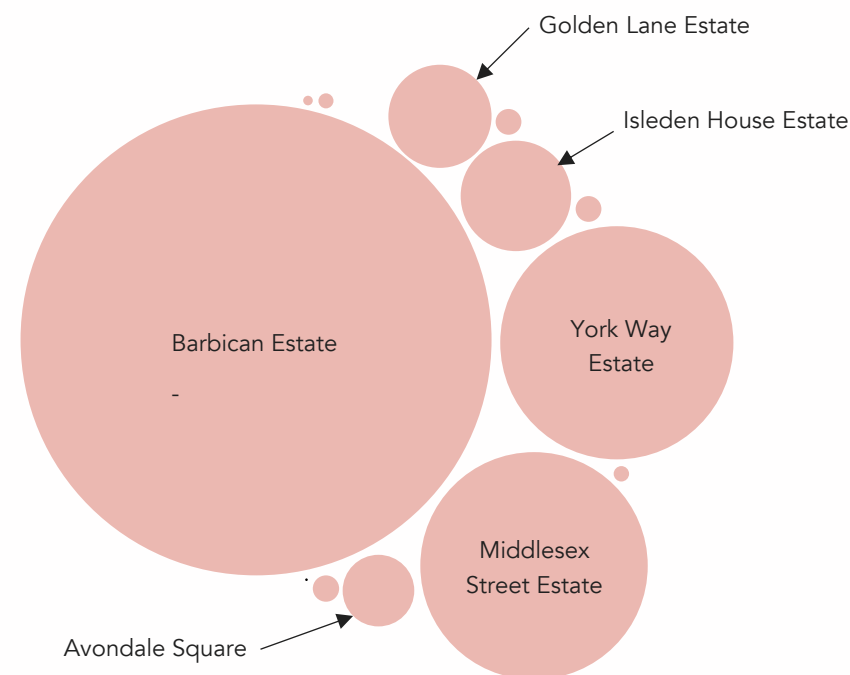
Utilising metered energy data given to us by the City of London Corporation for each estate for 2020, we could determine the following:

- Energy consumption of the Barbican's underfloor heating system for each block.
- Energy consumption of communally heated blocks, including Frobisher Crescent, York Way, Middlesex Street Estate and Isleden House (note that energy consumption data was not available for Horace Jones House or Twelve Acres House).
- Other electrical energy consumption including lighting of corridors and stairwells, lifts, pumps etc (note it was not possible to accurately disaggregate electrical energy consumption for different uses as labelling of meters was inconsistent).

We have determined the total Scope 1 and Scope 2 emissions in 2020 to be 5ktCO<sub>2</sub> (excluding non-residential energy uses on estates) and 5.3ktCO<sub>2</sub> including non-residential energy uses on estates.

Landlord Scopes 1 & 2	Resident Scope 3
Other electricity	Electricity
Electricity for Barbican underfloor heating	
Communal gas heating	Individual gas heating

Total stock emissions – scopes 1, 2 and 3.



Relative size of Scope 1 and 2 emissions for each estate, 2020. The largest Scope 1 and 2 emitters are communally heated estates and Golden Lane Estate (including leisure centre emissions).



# Listening to residents

## Understanding the buildings through the residents eyes

In May 2021 we engaged with residents' to gain insights into the energy and comfort performance of the homes they live in.

Firstly, a questionnaire was circulated to all residents, in which people told us a bit about their building through carefully structured questions.

Opportunities were also given for residents to write freely anything they wished to communicate (questionnaire outputs in the Appendices).

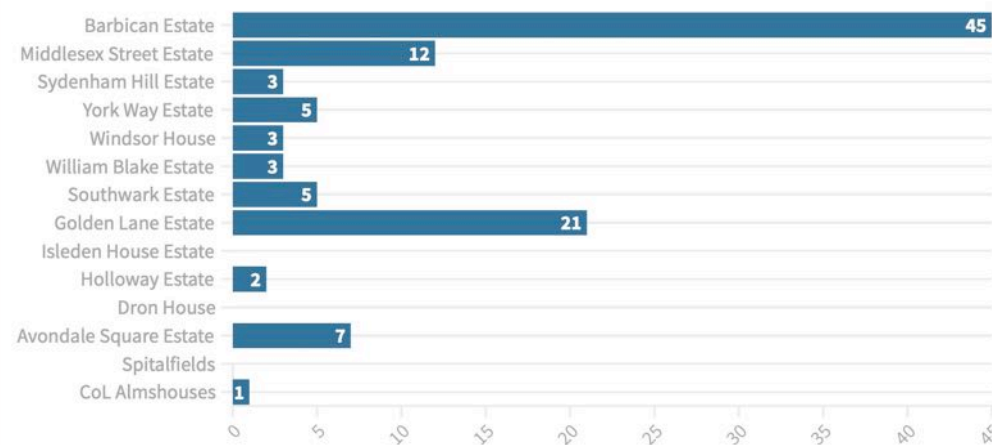
Subsequent to the questionnaire, we held workshops for residents with the same purpose of listening to residents to understand their buildings. Small group discussions took place centred around the themes of heating, energy efficiency, ventilation and renewable energy. A total of 23 people attended the workshops – 15 from the Barbican Estate and 8 from HRA estates.

## Key insights from residents

There was a strong interest from residents in moving away from gas to low carbon heating.

- Communally heated blocks appear to be getting enough heat, possibly too much. Most people said their homes were on the warm side and many open their windows in the winter to cool them down.
- Communally heated blocks most commonly complained of summertime overheating.
- Those blocks with individual heating tended to say it gets too cold in the winter, but it's comfortable in the summer.
- draughty, single glazed windows were unpopular with residents.
- Many residents also complained of doors being draughty.
- Homes with double or triple glazing performed better in winter.
- Ventilation is primarily through windows and trickle vents.

A more detailed write up of the engagement outputs can be found in the Appendices.



Number of responses to the energy and carbon questionnaire, by estate



Old, single glazing is draughty and residents are keen for replacements



Controls in communal heating systems are a priority issue to address.



Winter comfort varies. Individually heated homes report worst comfort. Communally heated homes report wintertime overheating



Summertime comfort varies. There is a trend to overheating, especially in communally heated homes.

Key insights from residents



# Simplifying the challenge: identifying archetypes

## Archetypes based on construction type

When considering grouping blocks into archetypes, it was clear that there are numerous ways in which this could be done.

We opted for an archetype system based on how a building is constructed, which roughly corresponds to how it looks, and also corresponds with appropriate fabric retrofit measures.

Low carbon heating and renewables retrofit measures should be decided independent of the archetype on a case by case basis. We have detailed the decision process for these on the following pages.

## Archetype Code

A short code for the archetypes has been used, with the following format:

[Elevation – Wall insulation location – roof insulation location]

Elevation

**Trad** - Traditional – Mostly solid or cavity wall, with discrete windows that can be replaced individually.

**Mix** - Combined / Mixed – Mostly composite wall/window elevations. Requires whole wall/window element to be replaced at the same time.

## Wall insulation location

**EWI** - External wall insulation – Post 1920s buildings, non listed. Either on a traditional wall build up as rendered external insulation (Trad type), or as re-cladding with integrated windows (Mix type).

**IWI** - Internal wall insulation - Pre 1920s buildings or listed buildings.

## Roof insulation

**Loft** – For pitched roofs with lofts. Most likely internal.

**Flat** – For flat roofs. Most likely external.

**Barrel** – For barrel roofs commonly found on the Barbican and Golden Lane Estates. External insulation if possible.

## Archetype code

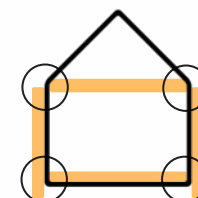
## Example

## Location of insulation

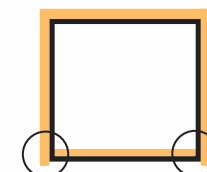
1. Trad – IWI – loft



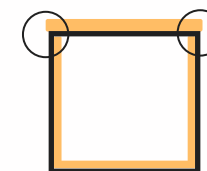
2. Trad – EWI – loft



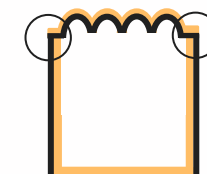
3. Trad – EWI - flat



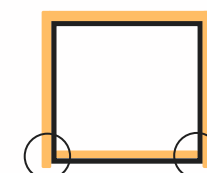
4. Mix – IWI - flat



5. Mix – IWI – barrel



6. Mix – EWI – flat



The six archetypes. Circles indicate where insulation is discontinuous and attention needs to be paid to junctions between insulation and building fabric.



# Fabric

Building fabric measures are important for both saving energy and carbon but also making buildings more resilient to future climate change.

## Windows

The replacement of all single glazing to good double or, preferably to triple glazing (or a u-value less than 1.0 W/m<sup>2</sup>K), is a relatively easy first step for most home retrofit plans. Importantly, this measure can also deliver potentially significant CO<sub>2</sub> savings and may be sufficient to enable many homes to be 'heat pump ready', through energy savings and peak heat demand reduction.

## Airtightness

Very good airtightness (target 2m<sup>3</sup>/h/m<sup>2</sup> at 50Pa) can achieve a substantial improvement in overall space heating demand through minimising heat loss. Limiting draughts and the uncontrolled ingress of pollutants and noise from the outside improves indoor air quality and comfort.

## Insulation

The simplest insulation upgrade is often at roof level, either increasing loft insulation or as part of routine roof maintenance work. Poor quality External Wall Insulation (EWI) installations across the UK, both technically and aesthetically, have seriously undermined confidence in this approach to improving the thermal performance of buildings but it is a vital element of retrofit work. Internal Wall Insulation (IWI) has less visual impact, so lower planning risk, than EWI but the impact on usable space and the degree of disruption required to tenants is far greater. Cavity wall insulation is possible where cavities exist.

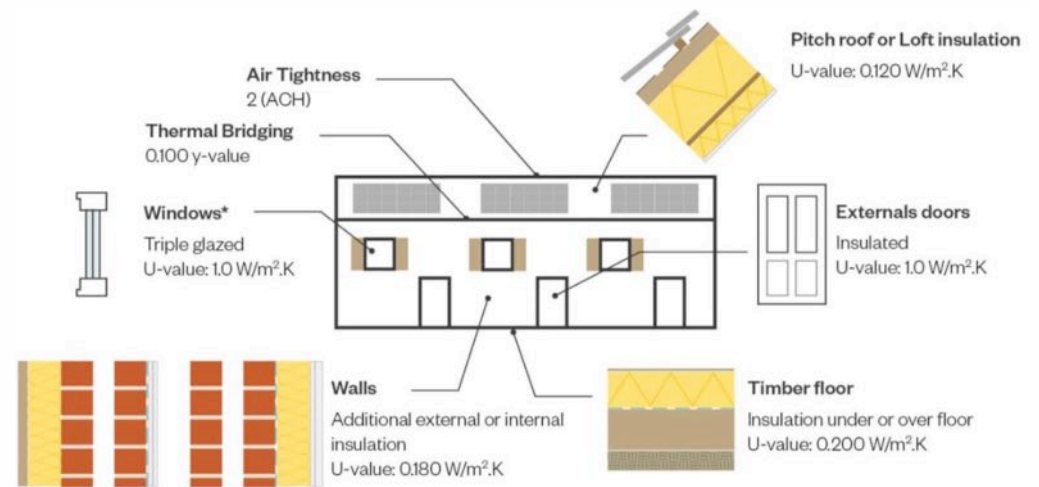
EWI has to be designed with great care in relation to fire standards and building safety as well as moisture but there are many successful examples.

## Ventilation

Concurrent with window replacement and air-tightness measures, ventilation should be upgraded to an energy efficient system with heat recovery. See the next page for more details on potential systems that could be used.



Replacement of windows is a key fabric efficiency measure. Single glazing should be replaced with double or triple glazing in every home. Measures to improve air tightness and reduce draughts require attention to the details when fabric works are undertaken.



Fabric specifications recommended for refurbishment.



# Ventilation

## Ventilation

Changing the thermal performance of the fabric of a building needs to be carried out in conjunction with improvements in ventilation. This is because the “leakiness” of a building may be purging moist and stale air - albeit with uncontrolled heat loss and possible comfort issues. The risk of implementing air-tightness measures without additional ventilation is the creation of damp and mould. Proper ventilation maintains air quality, manages heat loss and reduces the risk of condensation and mould.

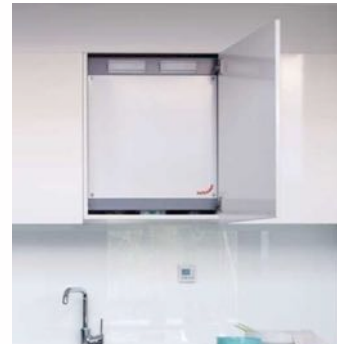
## MVHR

In every case, Mechanical Ventilation with Heat Recovery (MVHR) should be the first choice to provide ventilation. This is a central system for each home, which extracts air from kitchens and bathrooms and supplies fresh air into living rooms and bedrooms. This system reduces draughts, and provides clean, fresh air to every room, without wasting valuable heat. It is also a key enabling technology for low carbon heating systems, because it reduces the peak heating loads and slows heat loss.

Where MVHR cannot be considered, for example if ceiling heights are particularly constrained and ductwork routes cannot be found, central mechanical extract ventilation (MEV) may be an alternative. This system is also an individual unit for each home which extracts air from kitchens and bathrooms. The supply air comes from trickle vents, usually within window frames, located in living rooms and bedrooms. This system is less energy efficient and more prone to draughts than MVHR, but does provide reasonable background ventilation to suppress condensation, etc.

## Centralised Ventilation

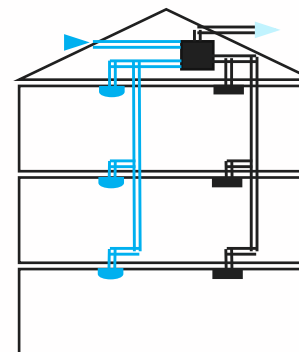
Where there is no space and/or no route to outside air for ventilation within each home, particularly in high density housing with heritage status constraints that limit façade penetrations, a centralised system for the whole block can provide extract and potentially supply air from central fans located on the building roof.



MVHR units can be ceiling mounted, usually above bathroom or hallway ceilings, or wall mounted in utility cupboards or kitchen units.



MEV units have a single extract fan with multiple connections to extract air from each ‘wet’ room in a home with a single exhaust to outside. The units are a little smaller than MVHR with fewer duct connections so may fit where MVHR doesn’t.



Centralised ventilation can provide either extract only or supply and extract with heat recovery. There is a risk of ‘cross talk’ noise from one flat to the next so the acoustic design is critical.

Note: The introduction of any of the following mechanical ventilation strategies will not replace the need for opening windows to provide summer ventilation to control overheating – this would also be required in all cases. If opening windows are prohibited by external noise or air quality concerns, supplementary ventilation and cooling may be necessary



# Choosing fabric and ventilation improvements

## A holistic approach

Fabric and ventilation improvements should be considered together and executed simultaneously in order to reduce some of the risks associated with reduced ventilation, such as condensation and mould.

Whole house retrofits where multiple energy efficiency measures are installed as opposed to implementing individual measures have been found to be more effective in reducing energy consumption.

## Windows

Replacing windows can bring multiple benefits. All single glazed and old double glazed windows should be replaced for all buildings, to improve energy efficiency and air tightness, reduce condensation and damp and reduce overheating risks.

Windows in some blocks have been replaced relatively recently, and do not need to be replaced again. Window replacements for a further nine blocks are programmed. The proposed specification should be reviewed to ensure the best possible performance is achieved in each case.

## Wall insulation

For buildings constructed before 1920, Internal Wall Insulation is likely to be the best option to increase the energy efficiency of the building facade. This is because the facades are often complex, making high quality installation difficult, or architecturally interesting.

For more modern buildings, External Wall Insulation (EWI) may be possible, dependent on heritage status & the complexity of the facade.

Different strategies for EWI can be adopted, depending on the type of existing facade and the building's structural frame.

## Air tightness

Better air-tightness is an important aspect of replacement window installation and should always be a key design consideration when this type of work is undertaken. Doors, letterboxes and other air-paths in the building fabric should also be assessed and addressed.

## The decision process for fabric improvements



### Windows

- ☐ Single glazed or old double glazed? → Replace.
- ☐ New double or triple glazing? → Spot check performance and air-tightness



### Wall insulation

- ☐ Pre-1920s? → Internal wall insulation
- ☐ Complex facade? → Internal wall insulation
- ☐ Listed or conservation area? → Internal wall insulation.
- ☐ Simple external form? → External wall insulation
- ☐ Post-1920s → External wall insulation.



### Air tightness

- ☐ draught proof all doors, letterboxes and leaky windows.



### Ventilation

- ☐ Install mechanical ventilation with heat recovery (MVHR) in all dwellings where possible.
- ☐ Limited potential for intakes and extracts on facade? → consider centralised MVHR



# Low Carbon Heating

## System Choices

The replacement of gas boilers with other forms of heating which have a lower carbon intensity is a fundamental part of the net zero carbon objective. Electricity has a lower carbon intensity than natural gas, so is seen as the principal alternative energy source to replace gas boilers.

## Heat Pumps

The most energy efficient electric heating systems utilise heat pumps. They can be employed for both individual and communal systems.

Air Source Heat Pumps usually have an external unit or units. Where there is space around a building, a Ground Source Heat Pump system could be utilised, using a communal group of boreholes and small heat pumps located inside each home. In buildings with a communal heating system, the gas boilers can be replaced with large central heat pumps.

In buildings where the heat demand is very high and difficult to reduce within the necessary timeframe, a hybrid arrangement where heat pumps are installed alongside existing gas boilers may provide an interim step to reduce carbon emissions with less impact on residents' energy bills. Correct controls are a crucial part of this type of system, to ensure emissions are reduced effectively.

## Direct electric heating

The simplest form of electric heating is 'direct', which uses heated elements in storage heaters, panel radiators and convectors, electric underfloor heating or electric boilers. In every case, this type of heating will use at least 2 or 3 times as much electricity as a comparable heat pump. Where fabric improvements are possible to reduce the heating demand to a point where direct electric heating is affordable for residents, it may be a good choice.

## Heat Networks

District and communal heating systems currently generally use fossil fuel based heat sources - Combined Heat & Power (CHP) or gas boilers. In future, these systems should swap to low carbon heat sources.



An Air Source Heat Pump (left) with an external unit, gathering heat from the surrounding air. A Ground Source Heat Pump (right) gathers heat from the ground via boreholes.



Left: A centralised heat pump system on the roof of a building. Right: Direct electric heating can use wall mounted radiators, panels or underfloor heating

Criteria	Heat Pump Type	Standard	Best Practice
Space Heating CoP	ASHP		3.50
	Closed GSHP	2.50	4.50
	Open GSHP		5.50
Domestic Hot Water CoP	ASHP		2.50
	Closed GSHP	2.0	2.50
	Open GSHP		3.00

Standard and best practice Coefficient of Performance (CoP) efficiencies for different heat pumps.



# Choosing the heat decarbonisation strategy

## Consider the alternatives, in a logical order

If an existing boiler needs to be replaced, heating alternatives which use electricity should be considered, as set out in the adjacent process. The specific type of heat pump to be used should be considered in a logical sequence, starting from the ones which are most efficient, as follows:

- ☐ Individual heat pump with dedicated external unit
- ☐ Individual ground source heat pump system
- ☐ Individual heat pump connected to a communal heat pump system
- ☐ Individual heat interface unit connected to a communal heat pump system
- ☐ Exhaust air source heat pump
- ☐ Hot Water Heat Pump / Direct Electric

## Enabling low carbon heat – set an appropriate space heating

### Demand target

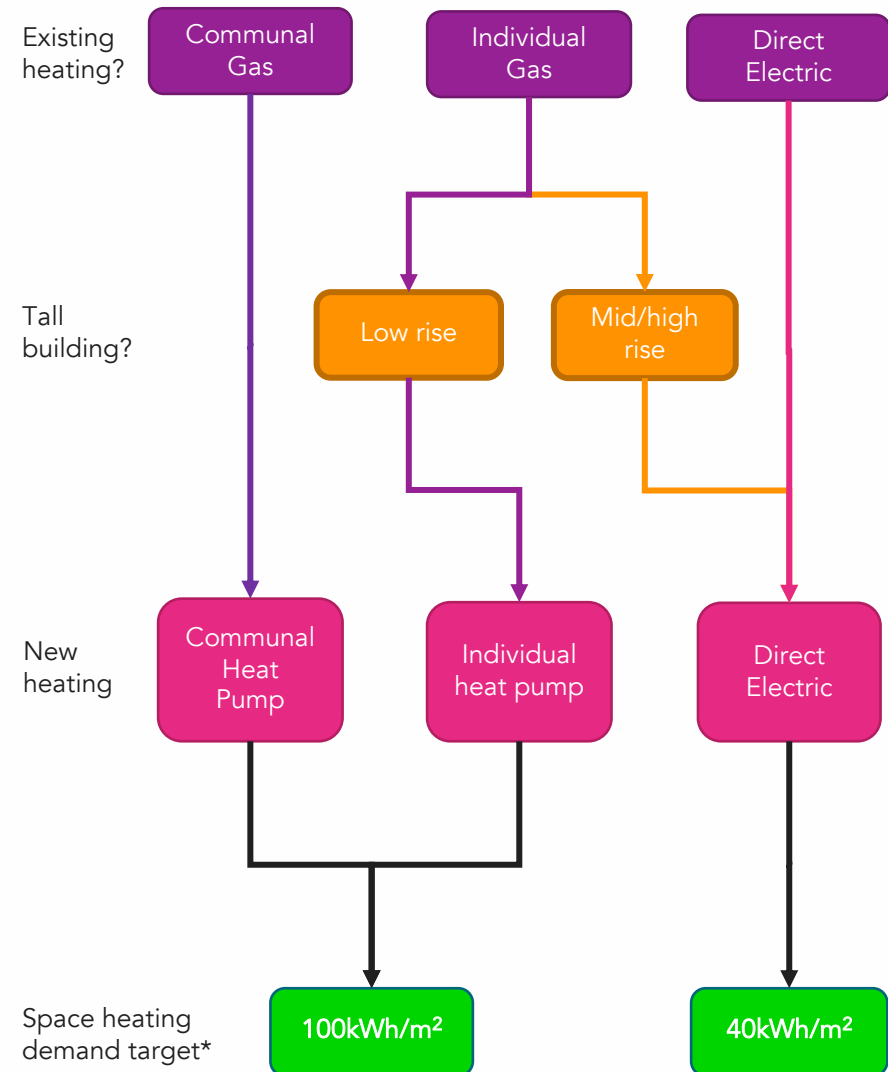
Simply swapping a heat pump to replace an existing gas boiler is generally seen as problematic for both economic and practical reasons. Principally:

Heat pumps, to be efficient, operate at lower heating water temperatures than gas boilers. In order to enable an early switch to low carbon heat sources, reductions in energy demand may be required, sufficient to enable the home to be switched to a low carbon heat source without major works to the installed heating system.

- Electricity is, on average, more expensive than gas so a like for like replacement may lead to higher fuel bills. Energy efficiency improvements are important to enable the home to be switched to electricity-based heating without incurring additional annual heating costs for the residents. We therefore recommend minimum space heating demands of 100 kWh/m<sup>2</sup> for homes heated by a heat pump system, and 40 kWh/m<sup>2</sup> for homes heated directly by electricity.

## Hot Water Storage

Hot water storage should always be part of all low carbon heat systems, if possible, to provide low cost, effective energy storage.



\*Where space heating targets are unachievable in the short term, an interim step may be to use a hybrid heat pump while fabric improvement works are undertaken



# Solar generation

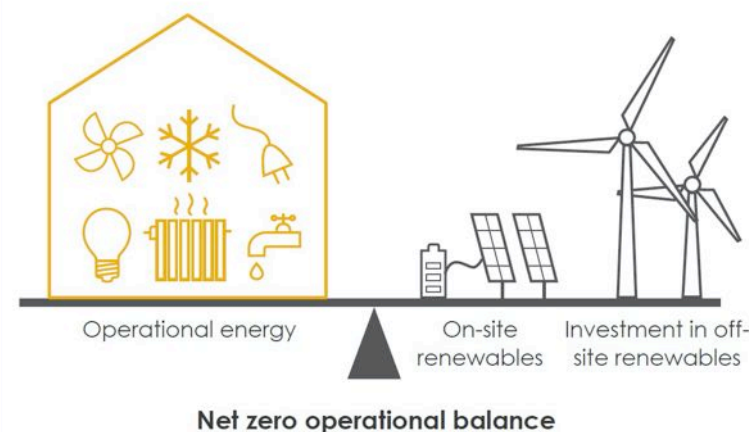
## Assess the potential extent of solar panels on site

Achieving a net zero energy balance in high density developments will rely upon finding space for as much renewable energy generation as possible.

Where fabric upgrades to roofs are required, these should be completed before PV panels are installed or, ideally, concurrently so the PV can be installed while access scaffolding etc is in place for the roof repair work.

## Optimise the panel layout

Having established which sites have potential for PV to be installed, the best possible panel layout should be used to maximise the power generated. In many cases and especially where there are flat roofs, this may not be a traditional south facing array, but may be an east-west array installed in a concertina fashion, as explained in the figures on the right.



© LETI Climate Emergency Design Guide

## Use the best available technology

Specify high efficiency monocrystalline silicon solar panels from a reputable manufacturer (min 360W)

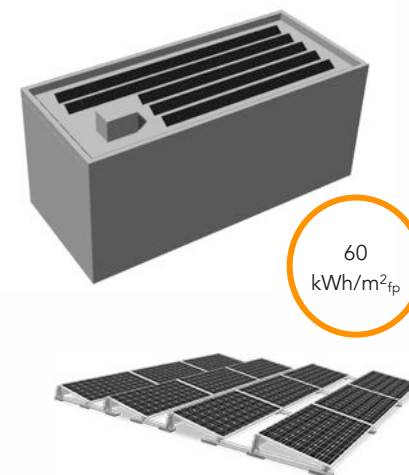
- Choose a panel with a linear power output warranty
- Specify microinverters or DC optimisers

High efficiency monocrystalline silicon solar panels can deliver excellent levels of efficiency while maintaining their performance over several decades. The advances in the technology are progressing rapidly and power outputs from commercially available panels are steadily increasing.

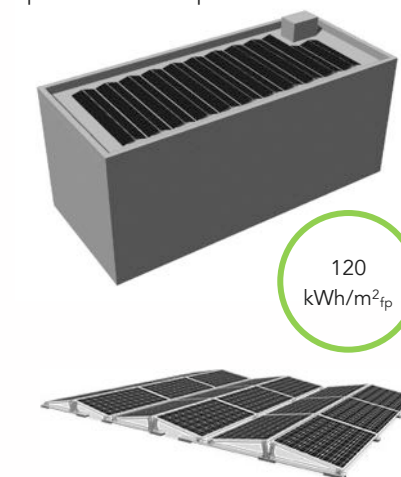
The power output warranty for a solar panel provides an indication of how it will perform over time. Higher performing solar panels have 'linear' warranties that guarantee higher levels of power production throughout the lifetime of the panel.

Module Level Power Electronics (MLPE) refer to technologies that manage power production individually for each solar panel. These can ensure each solar panel operates at its peak power output. There are two main MLPE options: microinverters or DC optimisers.

South facing array – panels need to be spaced apart to avoid inter-shading



East/west array – panels can be closer together so, overall, the array produces more power



The layout of PV panels has a significant impact on the power generated within a given roof space, especially on a flat roof



# Determining the solar generation strategy

## PV installations are relatively easy to plan for

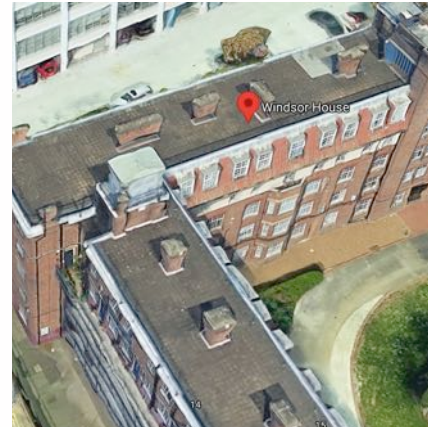
Photovoltaic panels are a versatile technology that can fit in a variety of locations, provided:

- ❑ the roof space is not overshadowed
- ❑ Pitch roofs are oriented south, east or west.
- ❑ Roofs do not have lots of chimneys or roof plant obstructing clear area and casting shadows.

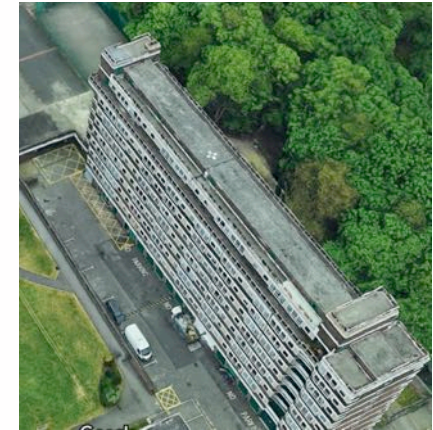
In our calculations for estimating potential output from photovoltaic panels, we have used a combination of: i) total area of roof, ii) % of roof area suitable for PV installation and iii) orientation.

Further analysis will be required by City of London Corporation to determine the suitability of particular roofs for PV installation:

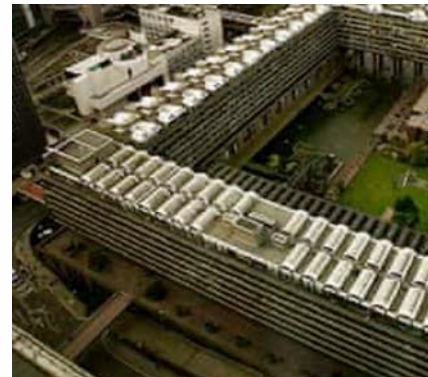
- ❑ The roof can withstand the additional weight of a solar photovoltaic panel installation.
- ❑ A details overshadowing analysis should be completed.
- ❑ A detailed PV layout and output study should be undertaken.



! Shading from chimneys may reduce output. Check.



✓ Roof appears to be unobstructed and unshaded. Flat roof means PV can be oriented optimally.



✗ Barrel roofs and listed status of these blocks at the Barbican estate mean PV is unlikely.



✓ South facing portion of pitch roof is suitable for PV. Check overshadowing (Harman Close, Avondale Square Estate).



# Appliances, white goods and lighting

## Energy efficient appliances & lighting

Appliances and white goods can use significant amounts of energy in a building. While these items are mostly an individual choice for residents, where new build or major works are taking place some items can be designed in, and in other cases appropriate information and encouragement can be provided to residents.

High efficiency appliances are recommended to limit total energy consumption and minimise overheating risk from waste energy given off as heat (i.e. A++ or A+++). Provision of clothes drying lines can help to avoid the use of tumble dryers. Generally, free-standing appliances can achieve better performance than integrated devices and their use is encouraged wherever this is possible although their compliance with the overall design needs also to be considered. Lighting efficacy is also a key way to reduce energy in individual homes. Light fittings should be as low energy as possible, e.g. LEDs and occupancy sensors and daylight dimming should be specified in communal areas where appropriate.



*Retractable clothes drying lines – could be located in the bathroom or a designated drying cupboard fitted with an extract*



*High-rated (A+++ ) washing machine*

## Waste water heat recovery

A well-designed wastewater heat recovery (WWHR) system can typically extract between 20% and 55% of the heat from outgoing waste water, using it to pre-heat incoming cold water. They are primarily applicable to showers, which create a simultaneous balanced flow of warm waste water and incoming cold water, permitting heat exchange to occur. For dwellings where showers are the main form of bathing, they are likely to account for around 70-80% of hot water use.

For very low energy buildings, hot water can exceed demand for space heating and therefore WWHR represents a significant opportunity to reduce overall energy consumption.



*Waste water heat recovery examples from left to right: Horizontal – underneath bath or shower tray; Vertical – typically 2400mm long and mounts between floors; Compact – mounts below shower tray, lower efficiency.*



# The Retrofit Map

## Each building is different

- Their current condition in terms of energy efficiency and heating system will be different.
- What can be done to improve them will vary and may be constrained by heritage and technical considerations.

We have used the adjacent Retrofit Map, developed for the Retrofit London Housing Action Plan, to enable the journey of buildings towards Net Zero to be summarised and understood. The Retrofit Map focuses on how to increase the level of energy efficiency with improvements to the fabric and ventilation system and how to decarbonise heat.

Ultimately, it is recommended that by 2040 (or earlier) all homes are moved to one of the green squares. The buildings which should be most urgently retrofitted will be in the red squares as they will be consuming most of the carbon budgets. However, we appreciate that other factors (e.g. maintenance schedules, replacement opportunities, fairness to residents) may influence the prioritisation.

**Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.

**Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved

**Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

FABRIC AND VENTILATION	HEAT DECARBONISATION					Low energy ↑ High energy
	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>	
	Heating demand <40 kWh/m <sup>2</sup> .yr					
	Heating demand <100 kWh/m <sup>2</sup> .yr					
	Heating demand <150 kWh/m <sup>2</sup> .yr					
	Heating demand >150 kWh/m <sup>2</sup> .yr					

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this Retrofit Map only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

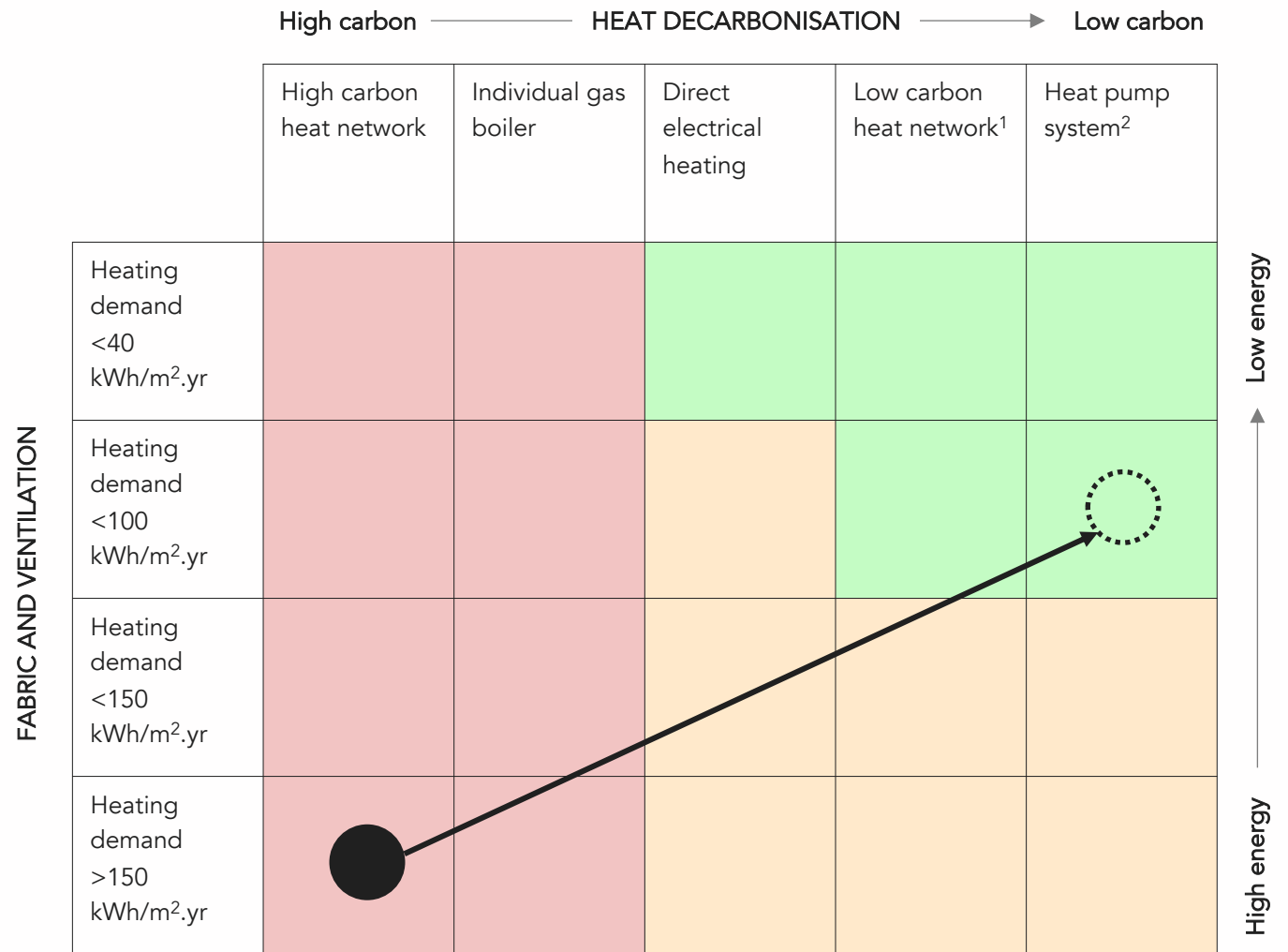
<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



# The Retrofit Map

## Example 1

- Current situation: this building is very inefficient and is heated by a high carbon heat network.
- Changes required: it should be improved with works on building fabric and ventilation and a new communal heat pump system.



Page 63

- Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a carbon content of heat (per kWh delivered) lower than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

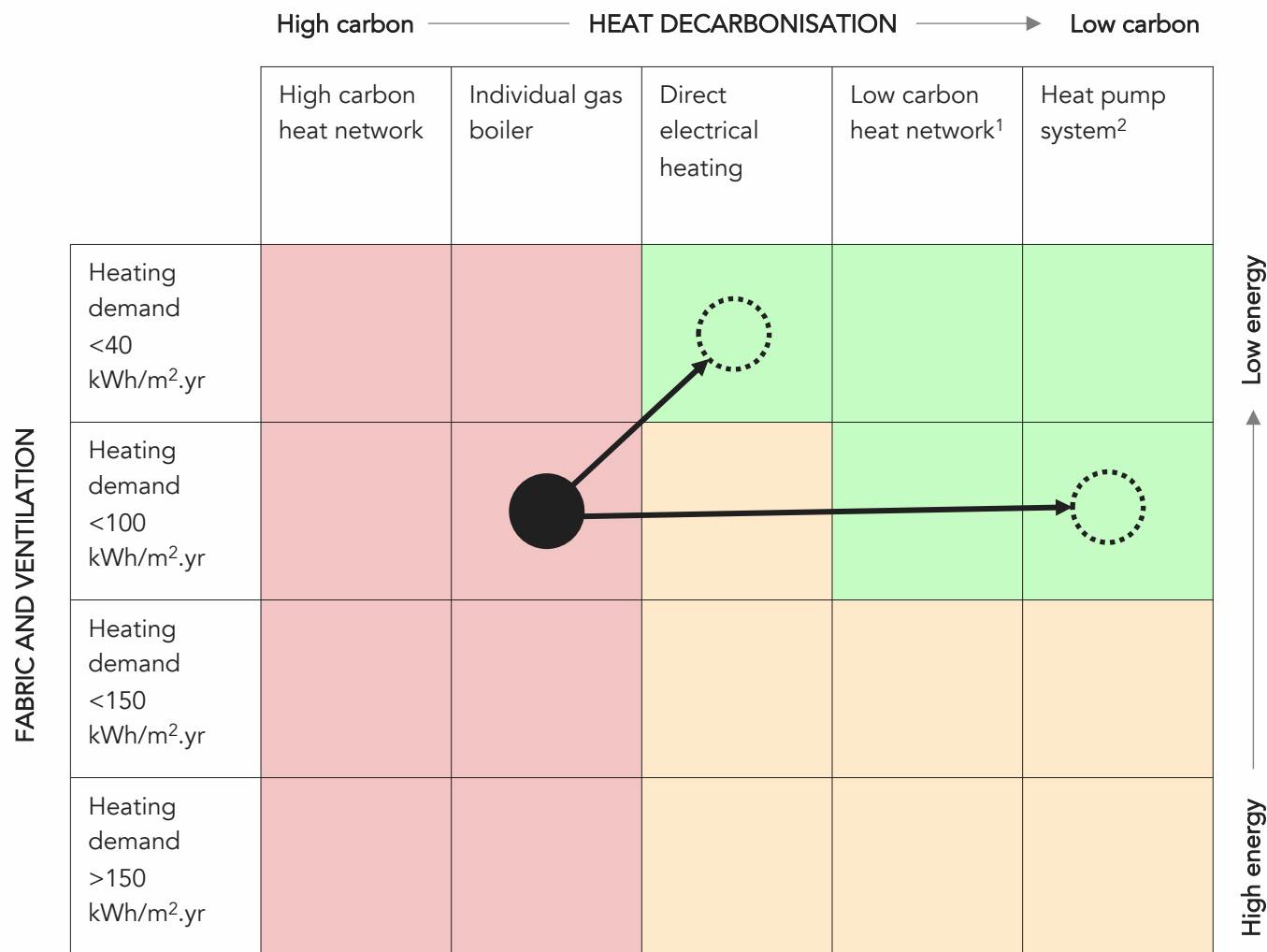
<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



# The Retrofit Map

## Example 2

- Current situation: this building is relatively efficient and is heated by individual gas boilers.
- Changes required: if a heat pump system is feasible, it is possible that the change of heating system would be sufficient and would not lead to an increase in energy costs even with no fabric and ventilation improvements. However, if a heat pump system is not feasible and direct electric is the selected heating system, improvements to the building fabric and ventilation are recommended.



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- Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



## 3.0 Housing Net Zero Action Plan templates

—

This section presents the retrofit action plan templates for the 6 different archetypes defined in Section 2.0.



# The Net Zero Matrix: our assessment of each building

The diagram to the right describes the structure of the Net Zero Matrix, the tool we use to recommend measures for every building.

## Archotyping

Firstly, metadata for buildings are assessed to sort the buildings into six archetypes according to features of the building fabric and potential for improvement.

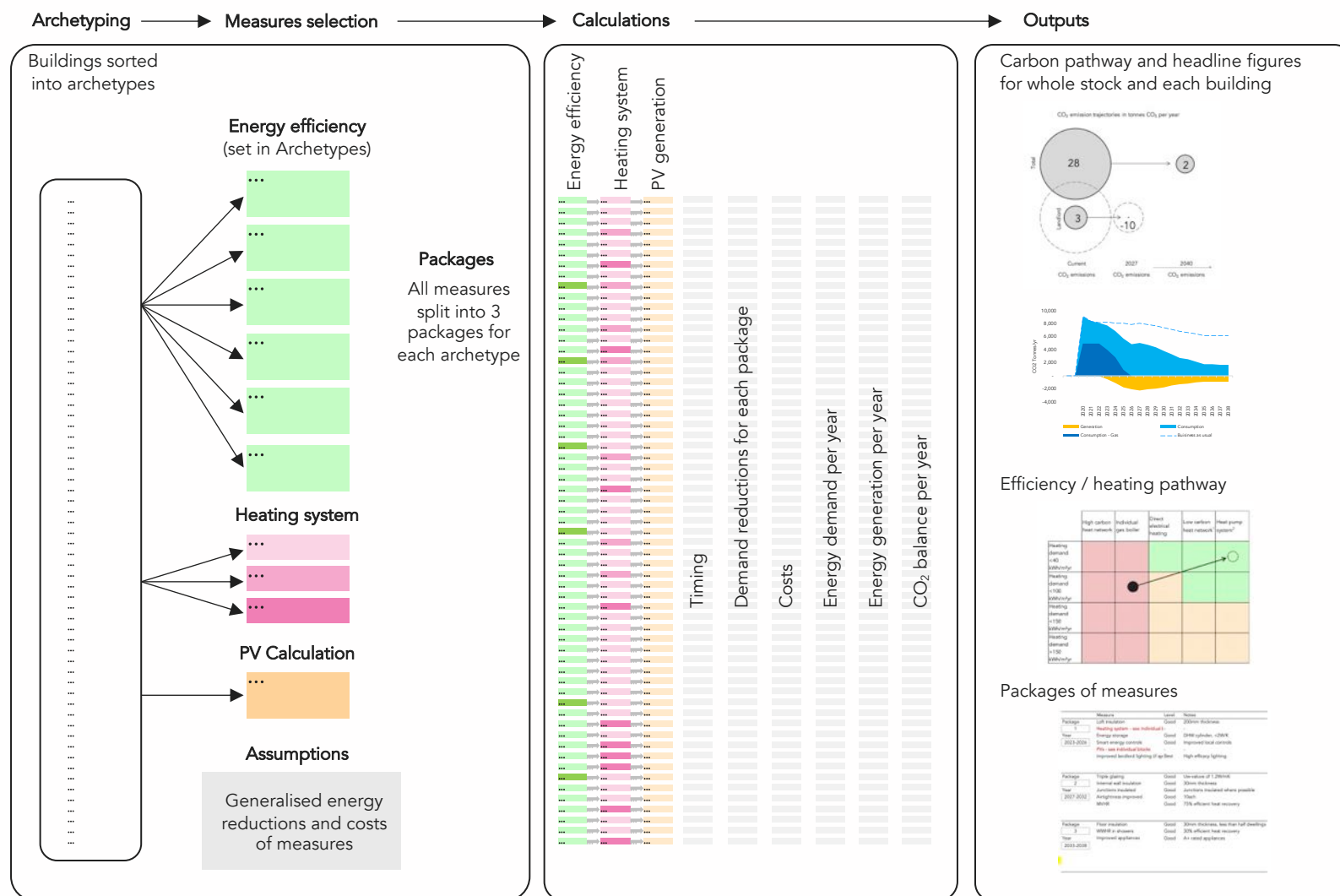
## Measures selection & packages

Energy efficiency measures are selected for each Archetype. The most appropriate heating system is then determined by using the heating system decision tree. Next PV assessment for each building gives approximate generation potential for each building.

The energy efficiency, heating and PV measures are then split into 3 packages for each archetype.

## Calculations

During the calculation stage, dates are set for each of the 3 packages in each building. The percentage reduction in energy consumption is then predicted, which gives an energy and carbon trajectory to 2040 for scope 1-3 emissions, as well as a trajectory to 2027 for scope 1 & 2 emissions.



Net Zero Matrix structure (graphics reproduced at larger scale on following pages).



# Simplifying the challenge: introducing the 6 archetypes

ARCHETYPE 1: Trad-IWI-Loft



e.g. City of London Almshouses

ARCHETYPE 2: Trad-EWI-Loft



e.g. Barnersbury House, Holloway Estate

ARCHETYPE 3: Trad-EWI-Flat



e.g. Collinson Court, Southwark Estate.

ARCHETYPE 4: Mix-IWI-Flat



e.g. Basterfield House

ARCHETYPE 5: Mix-IWI-Barrel



e.g. Bunyan Court, Barbican Estate

ARCHETYPE 6: Mix-EWI-Flat



e.g. Kinefold House, York Way



# Considerations for each archetype

## Risk factors and concurrent works

With any retrofit it's important to consider how works are designed, planned and executed in order not to incur unwanted unintended consequences such as the creation of mould and damp and the degradation of building fabric.

The figures to the right illustrate the main detailing considerations for each archetype, which are further described in the box below.

The key principles are to keep insulation lines continuous, ventilate properly, and consider moisture risk with internal insulation.

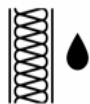
Page 68



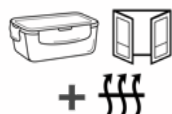
Insulation should be continuous. Pay attention to areas where there are breaks in insulation (see circles at junctions). These are risk areas for damp and mould.



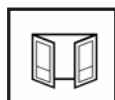
Loft insulation: ensure adequate ventilation to loft / rafters



Internal wall insulation: assess moisture risk, use vapour open insulation and keep U-value high ( $>0.35\text{W/m}^2\text{K}$ )



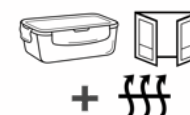
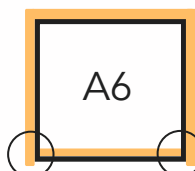
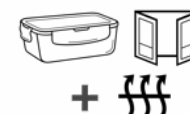
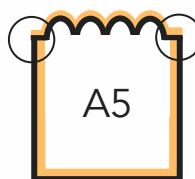
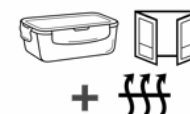
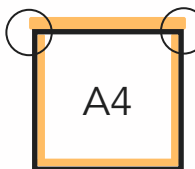
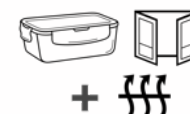
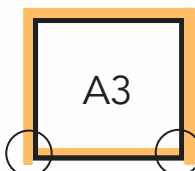
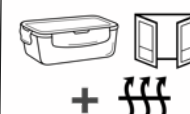
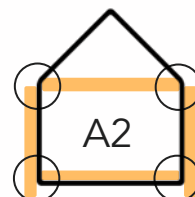
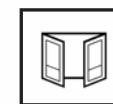
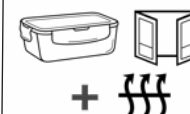
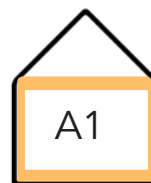
Windows / airtightness: ensure ventilation system assessed at same time or before



Specialist windows / heritage considerations

## Archetype

### Location of insulation





# Archetype 1 (Trad-IWI-loft) | Characteristics and list of buildings

## Key characteristics

Traditional façade, external wall insulation not likely to be possible.

Typically brick, heritage or complex façade.

Generally low-rise, two are 5 stories.

All have individual gas boilers. Eight have the potential for heat pumps, two are likely to require direct electric heating in the future.

All of the buildings (except Spitalfields) have a small amount of landlord energy.

## List of buildings

- City of London Almshouses, Ferndale Road<sup>1</sup>
- Gresham Almshouses, Ferndale Road
- Lammas Green, Sydenham Hill Estate
- Commercial Street, Spitalfields
- Brushfield Street, Spitalfields
- Lamb Street, Spitalfields
- Lynton Mansions, William Blake Estate
- McAuley Close, William Blake Estate
- St James Mansions, William Blake Estate
- York House, William Blake Estate

## Retrofit plan to Net Zero

- 1) Prioritise loft insulation, heating and DHW storage, energy controls, solar PV, any landlord lighting
- 2) Glazing, internal wall insulation, junctions, airtightness and MVHR
- 3) WWHR, improved appliances, floor insulation

<sup>1</sup> Detailed on next page



City of London Almshouses



Gresham Almshouses



Lammas Green



Commercial street



McAuley Close



Lynton Mansions

Images of some of the buildings



# Archetype 1 (Trad-IWI-loft) | Example: proposed retrofit plan and carbon pathway

## City of London Almshouses

Archetype A1

These buildings were built in 1884 and are in a conservation area, therefore the only option for insulating the walls will be internal wall insulation. We have assumed triple glazed heritage style windows (to be agreed with planning) and loft insulation.

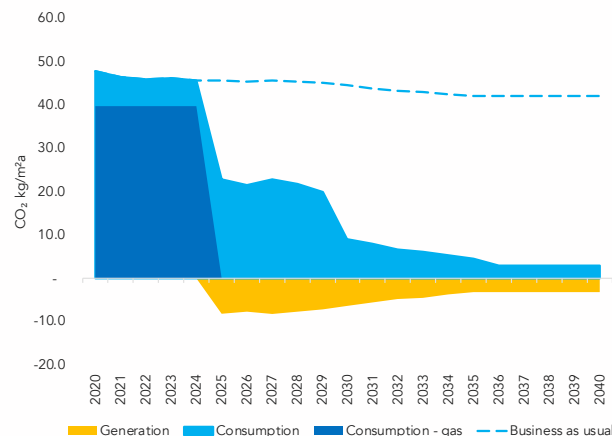
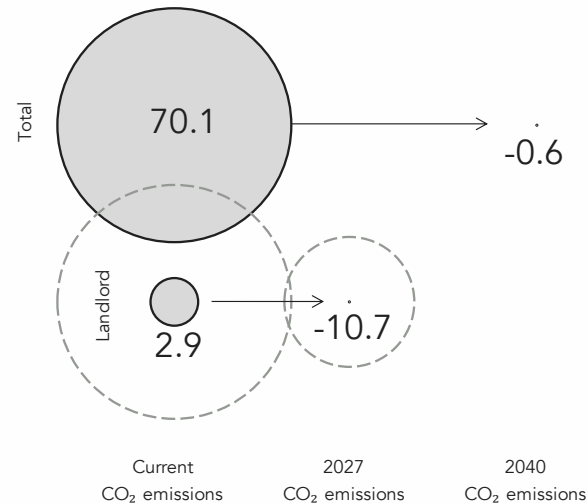
They are currently heated by individual gas boilers and we assume that heat pumps will be possible. Although the buildings are in a conservation area it may be possible to install solar PV on the Southwest facing roofs. We have also assumed small MVHR units can be installed in these dwelling.

There is a small amount of landlord energy from lighting which could be made more efficient and offset by the solar PV. These buildings could be net zero carbon by 2040 for scope 1,2 and 3 emissions.



Photograph of City of London Almshouses

CO<sub>2</sub> emission trajectories in tonnes CO<sub>2</sub> per year



Carbon balance for City of London Almshouses

Current and projected heating demand and system

	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>
Heating demand <40 kWh/m²/yr	Use of fossil fuels	Use of fossil fuels	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency
Heating demand <100 kWh/m²/yr	Use of fossil fuels	Use of fossil fuels	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency
Heating demand <150 kWh/m²/yr	Use of fossil fuels	Use of fossil fuels	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency
Heating demand >150 kWh/m²/yr	Use of fossil fuels	Use of fossil fuels	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency	Low carbon heat and sufficient level of energy efficiency

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.

	Measure	Level	Notes
Package 1	Loft insulation	Best	400mm thickness
Year 2023-2026	Individual HP	Best	SFP of 3+, Suitable if Heating demand <100kWh/m²a
	DHW tank	Best	DHW cylinder, <1W/K
	Smart energy controls	Best	Whole dwelling controls with zoning
	Solar PVs	Best	360Wp panels with microinverters
	Improved com. lighting (if appl.)	Best	High efficacy lighting
	Improved lift (if appl.)	Best	N/A
Package 2	Triple glazing	Good	Uw-value of 1.2W/mK
Year 2027-2032	Internal wall insulation	Best	100mm thickness
	Junctions insulated	Best	Good connections possible: floor-wall and/or wall-roof
	Airtightness improved	Best	2ach
	MVHR	Best	90% efficient heat recovery
Package 3	Floor insulation	Good	30mm thickness, <half dwellings
Year 2033-2038	WVHR in showers	Best	50% efficient heat recovery
	Improved appliances	Best	A+++ rated appliances

Breakdown of measures per package for City of London Almshouses



## Archetype 2 (Trad-EWI-loft) | Characteristics and list of buildings

### Key characteristics

Simple façade, mostly brick and distinct windows, some older buildings included. Pitched roofs. All low rise (2-4 stories).

### List of buildings

- Avondale House, Avondale Square Estate
- Harman Close, Avondale Square Estate
- Tevatree House, Avondale Square Estate
- Barnersbury House, Holloway Estate
- Bunning House, Holloway Estate
- Crayford House, Holloway Estate
- Fairweather House, Holloway Estate
- Hilton House, Holloway Estate
- McMoran House, Holloway Estate
- Whitby Court, Holloway Estate
- Isleden House, Prebend Street
- Great Suffolk Street, Southwark Estate
- Pakeman House, Southwark Estate
- **Otto Close**, Sydenham Hill Estate<sup>1</sup>

### Retrofit plan to Net Zero

- 1) Prioritise loft insulation, external wall insulation and window replacements, MVHR, heating and DHW storage, solar PV, any landlord lighting
- 2) Floor insulation, junctions and airtightness
- 3) WWHR, improved appliances, energy controls

<sup>1</sup> Detailed on next page



Images of some of the buildings



Archetype 2 (Trad-EWI-loft) | Example: proposed retrofit plan and carbon pathway

Otto Close

Archetype A2

These two story buildings were built in 1976 and are fairly simple brick construction. They would be suitable for external wall insulation, triple glazed windows and loft insulation.

They are currently heated by individual gas boilers and we assume that heat pumps will be possible. It should also be possible to install MVHR units, as well as solar PV on the Southeast facing roofs.

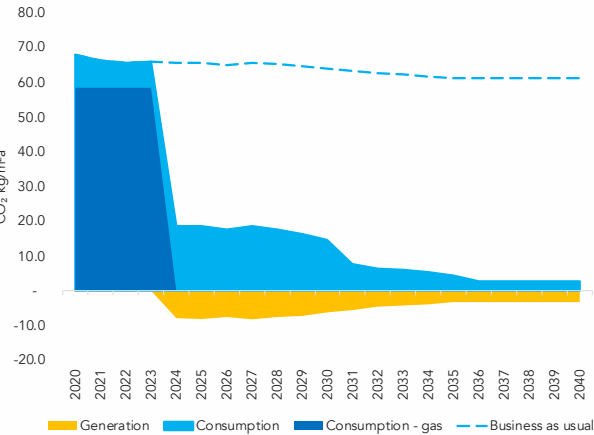
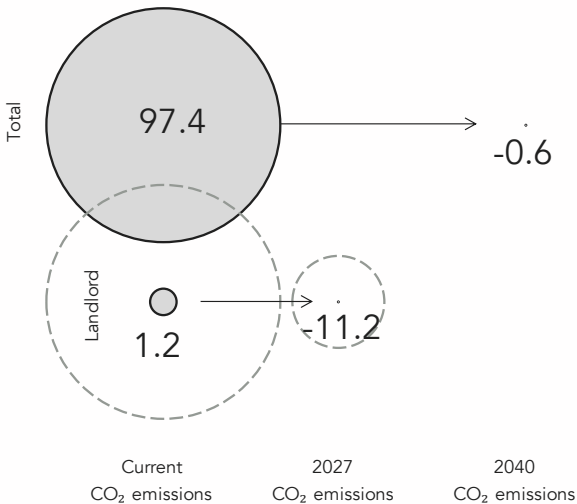
There is a small amount of landlord energy from lighting, which could be made more efficient and offset by the solar PV. These buildings could offset approximately 60% of emissions from onsite renewable energy generation by 2040.

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Photograph of Otto Close

CO<sub>2</sub> emission trajectories in tonnes CO<sub>2</sub> per year



Carbon balance for Otto Close

Current and projected heating demand and system

	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>
Heating demand <40 kWh/m²·yr					
Heating demand <100 kWh/m²·yr					
Heating demand <150 kWh/m²·yr					
Heating demand >150 kWh/m²·yr					

- Use of fossil fuels**  
Not compatible with Net Zero. The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.

	Measure	Level	Notes
Package 1	Triple glazing	Good	Uw-value of 1.2W/mK
Year 2023-2026	External wall insulation	Best	200mm thickness
	Loft insulation	Best	400mm thickness
	MVHR	Best	90% efficient heat recovery
	Individual HP	Best	SFP of 3+, Suitable if Heating demand <100kWh/m2a
	DHW tank	Best	DHW cylinder, <1W/K
	Solar PVs	Best	360Wp panels with microinverters
	Improved com. lighting (if appl.)	Best	High efficacy lighting
Package 2	Floor insulation	Good	30mm thickness, <half dwellings
Year 2027-2032	Junctions insulated	Good	Junctions insulated where possible
	Airtightness improved	Best	2ach
Package 3	WWHR in showers	Best	50% efficient heat recovery
Year 2033-2038	Improved appliances	Best	A+++ rated appliances
	Smart energy controls	Best	Whole dwelling controls with zoning

Breakdown of measures per package for Otto Close



## Archetype 3 (Trad-EWI-flat) | Characteristics and list of buildings

### Key characteristics

Simple façade, mostly brick and distinct windows, some older buildings included. Flat roof. 3-8 storeys.

### List of buildings

- Eric Wilkins House, Avondale Square Estate
- George Elliston House, Avondale Square Estate
- Twelve Acres House, Avondale Square Estate
- Dron House
- Bazeley House, Southwark Estate
- **Collinson Court**, Southwark Estate<sup>1</sup>
- Horace Jones House, Southwark Estate
- Markstone House, Southwark Estate
- Stopher House, Southwark Estate
- Sumner Buildings, Southwark Estate
- Blake House, William Blake Estate
- Donnelly House, William Blake Estate
- Windsor House, Windsor House
- Petticoat Square, Middlesex Street Estate

### Retrofit plan to Net Zero

- 1) Prioritise flat roof insulation, MVHR, heating and DHW storage, solar PV, any landlord lighting
- 2) Floor insulation, external wall insulation and window replacements, junctions and airtightness
- 3) WWHR, improved appliances, energy controls

<sup>1</sup> Detailed on next page



Eric Wilkins House



George Elliston House



Collinson Court



Dron House



Stopher House



Sumner Buildings

Images of some of the buildings



# Archetype 3 (Trad-EWI-flat) | Example: proposed retrofit plan and carbon pathway

## Collinson Court

Archetype A3

This block was built in 1957 and is fairly simple brick construction. It would be suitable for external wall insulation, triple glazed windows and flat roof insulation. It is currently heated by individual gas boilers. We recommend that these be replaced by direct electric during package 2, when the heating demand has been reduced by fabric improvement measures. It should also be possible to install MVHR units, as well as solar PV on some of the flat roof.

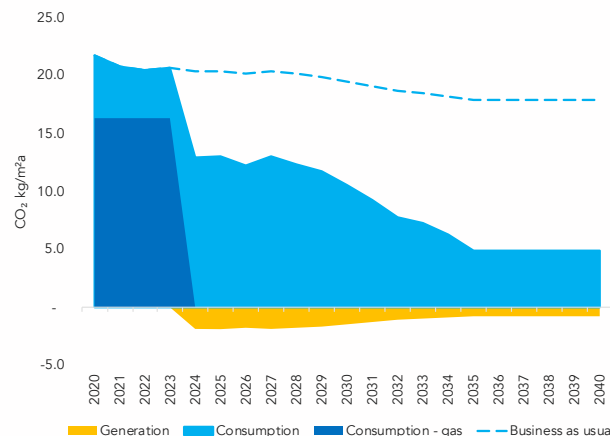
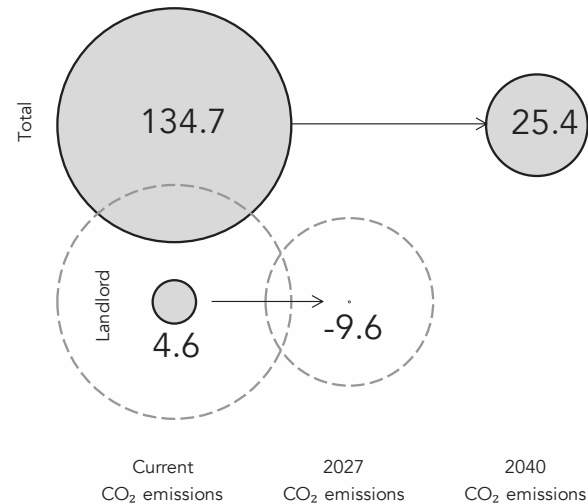
There is a small amount of landlord energy from lighting, which could be made more efficient and offset by the solar PV. This building could offset approximately 21% of emissions due to consumption from onsite renewable energy generation by 2040.

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Photographs of Collinson Court

CO<sub>2</sub> emission trajectories in tonnes CO<sub>2</sub> per year



Carbon balance for Collinson Court

Current and projected heating demand and system

	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>
Heating demand <40 kWh/m²/yr					
Heating demand <100 kWh/m²/yr					
Heating demand <150 kWh/m²/yr					
Heating demand >150 kWh/m²/yr					

- Use of fossil fuels**  
Not compatible with Net Zero. The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.

	Measure	Level	Notes
Package 1	Flat roof insulation	Best	250mm thickness
Year 2023-2026	MVHR	Best	90% efficient heat recovery
	Direct electric	Best	Suitable if Heating demand <40kWh/m²a
	DHW tank	Best	DHW cylinder, <1W/K
	Solar PVs	Best	360Wp panels with microinverters
	Improved com. lighting (if appl.)	Best	High efficacy lighting
	Improved lift (if appl.)	Best	High efficiency lift
Package 2	Triple glazing	Best	Uw-value of 0.8W/m²K
Year 2027-2032	Internal wall insulation	Best	100mm thickness
	Floor insulation	Good	30mm thickness, <half dwellings
	Junctions insulated	Best	Good connections possible: floor-wall and/or wall-roof
	Airtightness improved	Best	2ach
Package 3	WWHR in showers	Best	50% efficient heat recovery
Year 2033-2038	Improved appliances	Best	A+++ rated appliances
	Smart energy controls	Best	Whole dwelling controls with zoning

Breakdown of measures per package for Collinson Court



## Archetype 4 (Mix-IWI-flat) | Characteristics and list of buildings

### Key characteristics

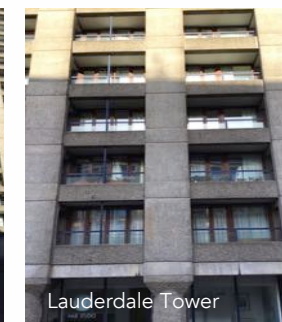
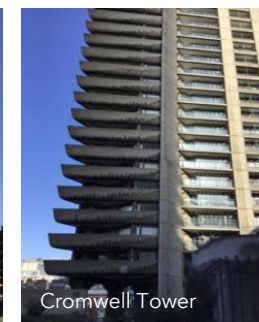
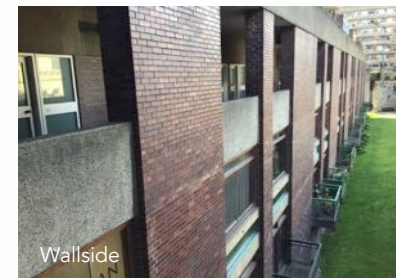
Complex façade, mixture of windows and panels, some brick/clad wall. Flat roof. Golden Lane and Barbican. Includes 3 towers. Typically listed or in a conservation area. Limited wall space for internal wall insulation.

### List of buildings

- **Basterfield House**, Golden Lane Estate<sup>1</sup>
- Bayer House, Golden Lane Estate
- Bowater House, Golden Lane Estate
- Cullum Welch House, Golden Lane Estate
- Cuthbert Harrowing House, Golden Lane Estate
- Great Arthur House, Golden Lane Estate (Tower, curtain wall)
- Hatfield House, Golden Lane Estate
- Stanley Cohen House, Golden Lane Estate
- Cromwell Tower, Barbican Estate (Tower)
- Lauderdale Tower, Barbican Estate (Tower)
- Mountjoy House, Barbican Estate
- Shakespeare Tower, Barbican Estate (Tower)
- The Postern, Barbican Estate
- Wallside, Barbican Estate

### Retrofit plan to Net Zero

- 1) Prioritise flat roof insulation, energy controls, heating and DHW storage, solar PV, any landlord lighting
- 2) Floor insulation, internal wall insulation (where possible) and window replacements (where possible – redesign of panelised systems may be appropriate in some cases), junctions and airtightness, MVHR
- 3) WWHR, improved appliances



Images of some of the buildings

<sup>1</sup> Detailed on next page



# Archetype 4 (Mix-IWI-flat) | Example: Proposed retrofit plan and carbon pathway

## Basterfield House

Archetype A4

This four story block was built in 1957 and is Grade II Listed, making internal wall insulation necessary on areas of clear wall. The façades are fairly complex with a mixture of windows and panels on the main facade, the replacement strategy would need careful consideration but in principle triple glazed windows are possible. The roof is flat, which is suitable for insulating with PV panels on top.

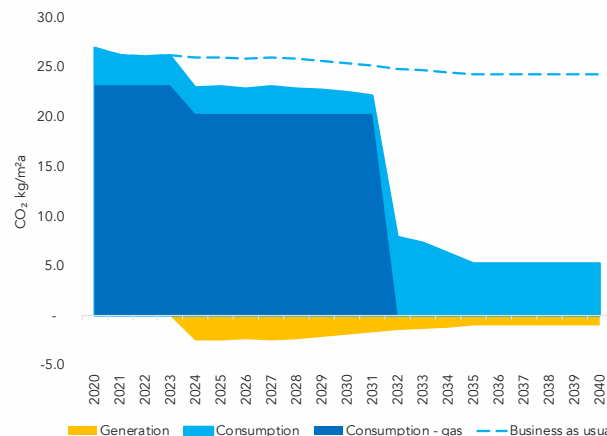
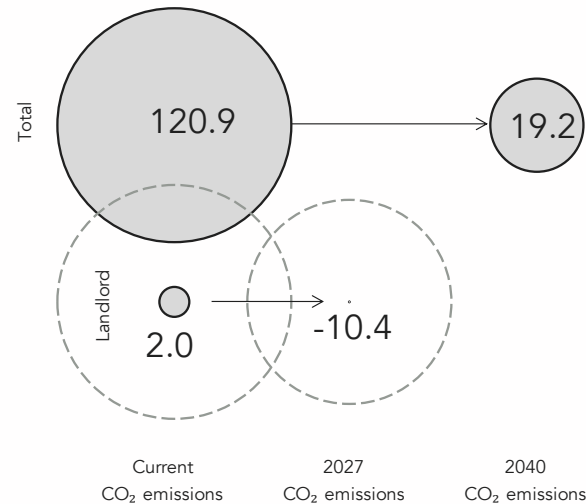
Heat pumps may be possible for this block but would need detailed assessment. Otherwise we recommend that the boilers are replaced by direct electric during package 2, when the heating demand has been reduced by fabric improvement measures. It should also be possible to install MVHR units.

There is a small amount of landlord energy from lighting, which could be made more efficient and offset by the solar PV. This building could offset approximately 23% of emissions due to consumption from onsite renewable energy generation by 2040.



Photograph of Basterfield House

CO<sub>2</sub> emission trajectories in tonnes CO<sub>2</sub> per year



Carbon balance for Basterfield House

Current and projected heating demand and system

	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>
Heating demand <40 kWh/m²·yr					
Heating demand <100 kWh/m²·yr					
Heating demand <150 kWh/m²·yr					
Heating demand >150 kWh/m²·yr					

- Use of fossil fuels**  
Not compatible with Net Zero. The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.

	Measure	Level	Notes
Package 1	Flat roof insulation	Best	250mm thickness
	Smart energy controls	Best	Whole dwelling controls with zoning
Year 2023-2026	Solar PVs	Best	360Wp panels with microinverters
	Improved com. lighting (if appl.)	Best	High efficacy lighting
	Improved lift (if appl.)	Best	N/A
			£661k
Package 2	Triple glazing	Good	Uw-value of 1.2W/mK
	Internal wall insulation	Good	30mm thickness
	Floor insulation	Good	30mm thickness, <half dwellings
Year 2027-2032	Junctions insulated	Good	Junctions insulated where possible
	Airtightness improved	Best	2ach
	Direct electric	Best	90% efficient heat recovery
			£1517k
Package 3	WWHR in showers	Best	50% efficient heat recovery
	Improved appliances	Good	A+ rated appliances
Year 2033-2038			
			£108k

Breakdown of measures per package for Basterfield House



## Archetype 5 (Mix-IWI-barrel) | Characteristics and list of buildings

### Key characteristics

Barbican Estate or Golden Lane Estate (Crescent House), complex façade, mostly more than 10 storeys, mixture of windows and panels, potentially some clear wall but likely to need to be internally insulated for heritage reasons. These buildings all have a barrel roof, partial roof insulation is possible.

### List of buildings

- Andrews House, Barbican Estate
- Ben Jonson House, Barbican Estate
- Brandon Mews, Barbican Estate
- Breton House, Barbican Estate
- Bryer Court, Barbican Estate
- Bunyan Court, Barbican Estate
- **Crescent House**, Golden Lane Estate<sup>1</sup>
- Defoe House, Barbican Estate
- Frobisher Crescent, Barbican Estate
- Gilbert House, Barbican Estate
- John Trundle Court, Barbican Estate
- Lambert Jones Mews, Barbican Estate
- Seddon House, Barbican Estate
- Speed House, Barbican Estate
- Thomas More House, Barbican Estate
- Willoughby House, Barbican Estate

### Retrofit plan to Net Zero

- 1) Prioritise barrel and flat roof insulation where possible, energy controls, heating and DHW storage, landlord lighting, PV if possible (less likely)
- 2) Floor insulation, IWI (small areas where possible), window replacements (where possible – redesign of panelised systems may be appropriate in some cases), junctions and airtightness, MVHR

- 3) WWHR, improved appliances

<sup>1</sup> Detailed on next page



Andrews House



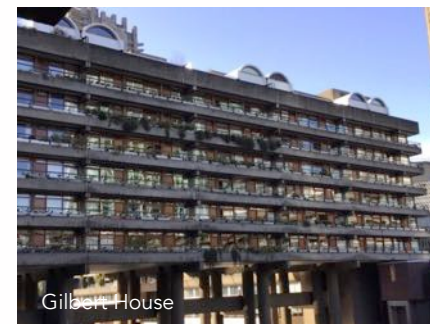
Brandon Mews



Crescent House



Bunyan Court



Gilbert House



Thomas More House

*Images of some of the buildings*



# Archetype 5 (Mix-IWI-barrel) | Example: Proposed retrofit plan and carbon pathway

## Crescent House

Archetype A5

This four story block was built in 1962 and is Grade II Listed, making internal wall insulation necessary on areas of clear wall. The façades are very complex with a mixture of windows and panels on the main facade, the replacement strategy would need careful consideration, triple glazed windows or equivalent may be possible. The roof is a low barrel profile which may be partially suitable for PV panels on the south facing portions. It should be possible to insulate this on top.

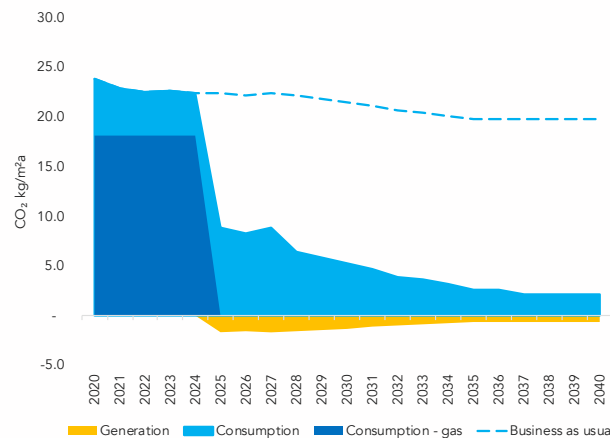
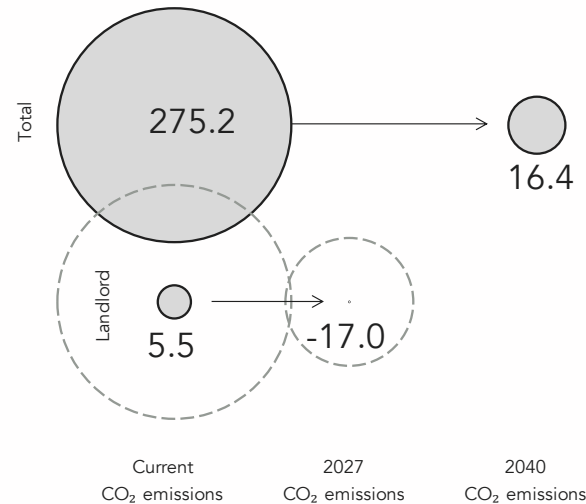
Heat pumps may be possible for this block but would need detailed assessment. It should also be possible to install MVHR units. There is a small amount of landlord energy from lighting, which could be made more efficient and offset by the solar PV. This building could offset approximately 23% of emissions due to consumption from onsite renewable energy generation by 2040.

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Photographs of Crescent House

CO<sub>2</sub> emission trajectories in tonnes CO<sub>2</sub> per year



Carbon balance for Crescent House

Current and projected heating demand and system

	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>
Heating demand <40 kWh/m²·yr					
Heating demand <100 kWh/m²·yr					
Heating demand <150 kWh/m²·yr					
Heating demand >150 kWh/m²·yr					

- Use of fossil fuels**  
Not compatible with Net Zero. The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.

	Measure	Level	Notes
Package 1	Flat roof insulation	Good	100mm thickness
Year 2023-2026	Individual HP	Best	SFP of 3+, Suitable if Heating demand <100kWh/m2a
	DHW tank	Best	DHW cylinder, <1W/K
	Smart energy controls	Best	Whole dwelling controls with zoning
	Solar PVs	Best	360Wp panels with microinverters
	Improved com. lighting (if appl.)	Best	High efficacy lighting
	Improved lift (if appl.)	Best	N/A
Package 2	Triple glazing	Good	Uw-value of 1.2W/mK
Year 2027-2032	Junctions insulated	Good	Junctions insulated where possible
	Airtightness improved	Good	5ach
	MVHR	Best	90% efficient heat recovery
Package 3	WWHR in showers	Best	50% efficient heat recovery
Year 2033-2038	Improved appliances	Best	A+++ rated appliances

Breakdown of measures per package for Crescent House



## Archetype 6 (Mix-EWI-flat) | Characteristics and list of buildings

### Key characteristics

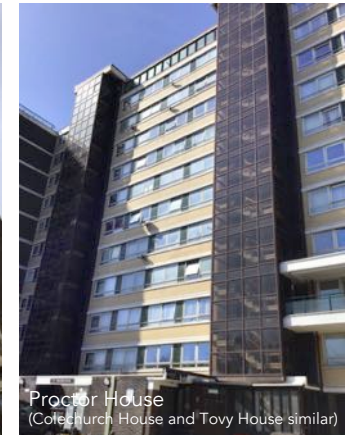
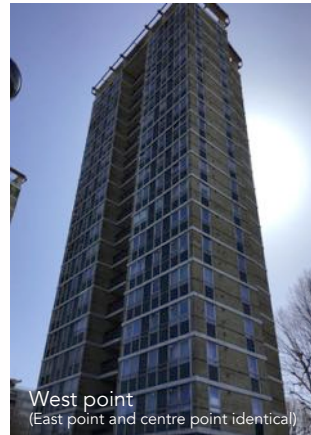
Complex façade, mixture of windows and panels, potentially some clear wall. These blocks have flat roofs and some potential for external wall insulation (EWI).

### List of buildings

- Brettinghurst house, Avondale Square Estate
- Centre Point, Avondale Square Estate (Tower)
- East Point, Avondale Square Estate (Tower)
- West Point, Avondale Square Estate (Tower)
- Colechurch House, Avondale Square Estate (Tower)
- Proctor House, Avondale Square Estate (Tower)
- Tovy House, Avondale Square Estate (Tower)
- **Petticoat Tower**, Middlesex Street Estate (Tower)<sup>1</sup>
- Longland Court, Avondale Square Estate
- Kinfold House, York Way Estate
- Lambfold House, York Way Estate
- Penfields House, York Way Estate
- Shepherd House, York Way Estate

### Retrofit plan to Net Zero

- 1) Prioritise flat roof insulation, heating and DHW storage, solar PV, any landlord lighting, energy controls
- 2) External wall insulation and window replacements (where possible – redesign of panelised systems in some cases), junctions, airtightness and MVHR
- 3) Floor insulation, WWHR, improved appliances



Images of some of the buildings

<sup>1</sup> Detailed on next page



Archetype 6 (Mix-EWI-flat) | Example: Proposed retrofit plan and carbon pathway

Petticoat Tower

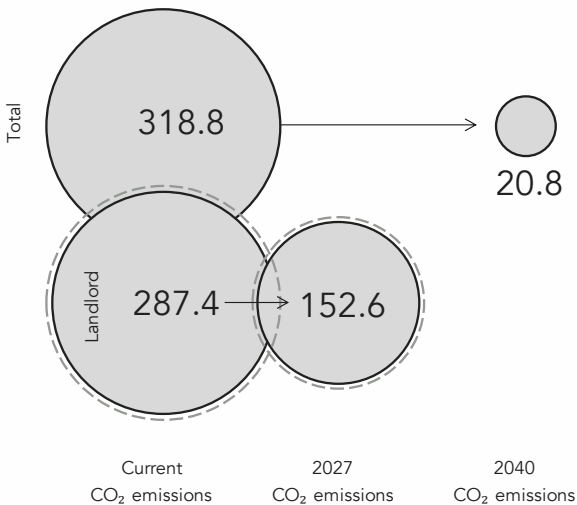
Archetype A6

This 23 storey tower was built in 1972. The windows have been replaced with triple glazing. The tower would be suitable for external wall insulation - particular attention should be paid to junctions with windows and the concrete panels surrounding the windows. Flat roof insulation is also recommended.

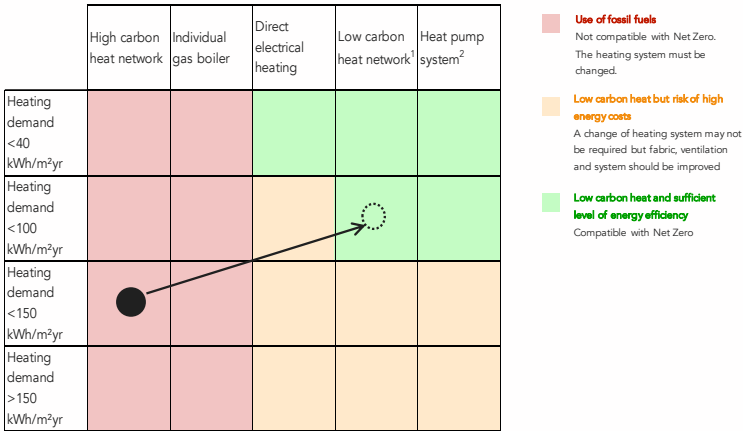
The block is currently heated by a communal gas boiler. We would recommend replacing this with a communal heat pump system as soon as possible. It should also be possible to install MVHR units, as well as a small amount of solar PV on the flat roof.

The landlord emissions include the communal boiler, lighting and lifts, which can be reduced significantly by a change in heating system by 2027.

CO<sub>2</sub> emission trajectories in tonnes CO<sub>2</sub> per year



Current and projected heating demand and system

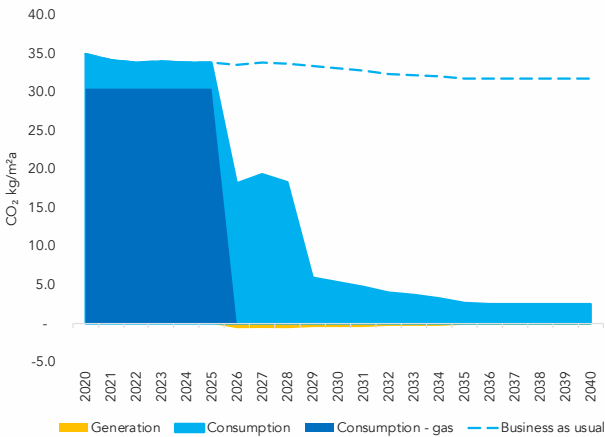


¹ A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

² Could be an individual or building level heat pump with low distribution losses.



Photograph of Petticoat Tower



Carbon balance for Petticoat Tower

	Measure	Level	Notes
Package 1	Flat roof insulation	Best	250mm thickness
Year 2023-2026	Communal heat pumps	Best	Using existing communal heat infrastructure
	DHW tank	Best	DHW cylinder, <1W/K
	Smart energy controls	Best	Whole dwelling controls with zoning
	Solar PVs	Best	360Wp panels with microinverters
	Improved com. lighting (if appl.)	Best	High efficacy lighting
	Improved lift (if appl.)	Best	High efficiency lift
			£1932k
Package 2	Triple glazing	Good	Uw-value of 1.2W/mK
Year 2027-2032	External wall insulation	Best	200mm thickness
	Junctions insulated	Best	Good connections possible: floor-wall and/or wall-roof
	Airtightness improved	Good	5ach
	MVHR	Best	90% efficient heat recovery
			£2473k
Package 3	Floor insulation	Good	30mm thickness, <half dwellings
Year 2033-2038	VVHR in showers	Best	50% efficient heat recovery
	Improved appliances	Best	A+++ rated appliances
			£419k

Breakdown of measures per package for Petticoat Tower



## 4.0 Relating the action plan to the Climate Action Strategy

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This section relates the retrofit plans and new build housing plans back to the Climate Action Strategy



# Relating retrofit plans and new build strategy to the climate action strategy

## Retrofit of housing

The bulk of this report relates to the 5,028 existing dwellings the City of London Corporation owns. The retrofit plans presented in the previous chapter map out carbon reduction strategies for six representative archetypes identified.

The following pages map out the expected combined carbon pathway of the Corporation's housing portfolio, against both the 2027 and 2040 Climate Action Strategy targets.

For the 2027 target we have mapped two scenarios:

Scenario 1) All actions in the retrofit plans take place but Middlesex Street Estate and York Way Estate remain on gas fired communal heating.

Scenario 2) All actions in the retrofit plans take place, including replacement of all communal gas boilers with low carbon heat alternatives.

## New build

The City of London Corporation are adding to their housing portfolio through the construction of new housing estates.

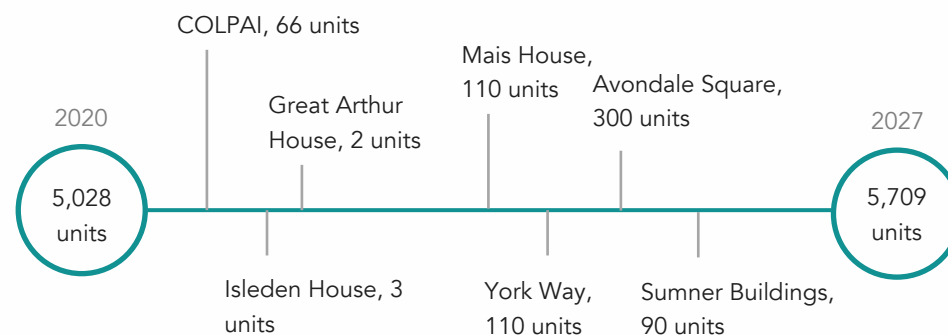
The estimated future carbon emissions of these new housing estates are included in our 2027 calculations, the first of which will be operational from 2022. As at 2027, the new build dwellings are expected to represent 12% of the stock (591 units) and 5% of the carbon emissions.

See the Appendices for information on the known new build housing, what was included in the calculations, and the assumptions made.

## Non-domestic buildings on housing estates

Some of the estate have buildings with non-domestic uses, for example, estate offices, community centres, a leisure centre and library. The carbon emissions of these buildings are not included in our calculations as they are not housing.

For context, we have calculated the Scope 1 and 2 emissions from these buildings and compared them as a proportion of the estate's overall carbon emissions, see diagram on the right.



Timeline of known new-build programme for the City of London Housing portfolio

Scope 1 and 2 emissions from dwellings = 5 ktCO<sub>2</sub>/yr (2020)

Scope 1 and 2 emissions from non-residential buildings on housing estates = 0.2 ktCO<sub>2</sub>/yr (2020)

Scope 1 and 2 emissions from dwellings on residential estates and non-domestic buildings on residential estates, owned or managed by the City of London Corporation.



# Summary of carbon emissions reduction potential by 2027

## Achieving the 2027 target for Scope 1 and 2 emissions

We have modelled two scenarios to assess the carbon emissions reduction potential by 2027, of the Corporation's housing stock.

Approximately 1/3 of current Scope 1 and 2 emissions are from communal can heating of Middlesex Street Estate, York Way Estate, Isleden House and Frobisher Crescent.

While the ideal scenario would be to replace these communal gas boilers with low carbon alternatives, the two largest estates (Middlesex Street Estate and York Way Estate) are both in the process of having their communal heating systems replaced with new gas boilers. Therefore, we understand the Corporation may not be able to invest in replacement with low carbon heat alternatives.

We this in mind, we have tested two scenarios:

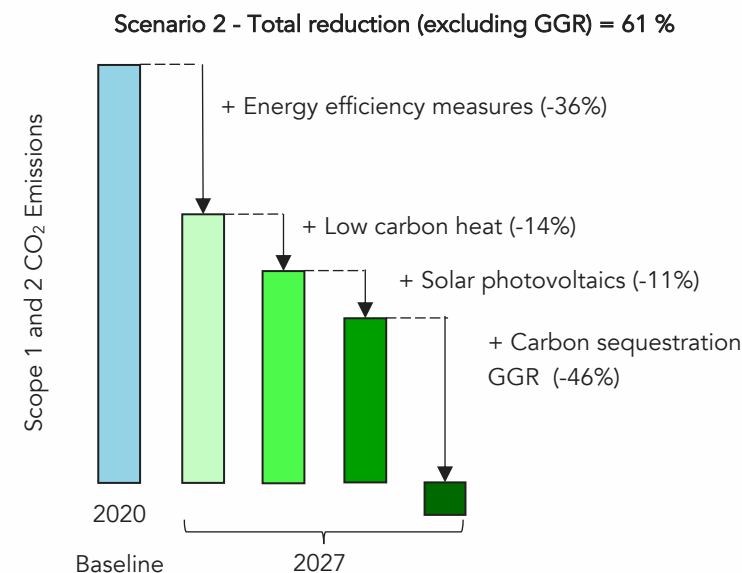
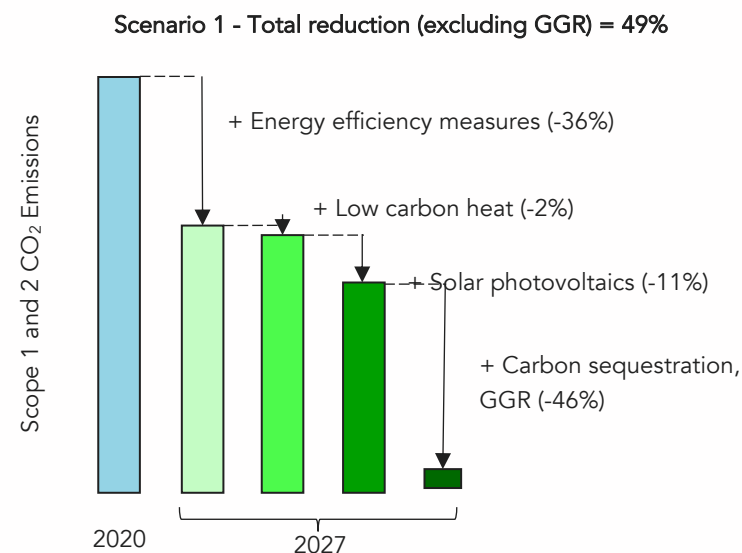
**Scenario 1:** As per retrofit plans, but gas communal heating remains for Middlesex Street Estate and York Way Estate

In this scenario, at 2027 a 49% reduction in emissions is achieved from the 2020 baseline. This is achieved through use of energy efficiency measures, replacement of communal gas boilers with low carbon heat (at Isleden House and Frobisher Crescent only), and the installation of photovoltaic panels on the roofs of all buildings across the estate (where roof area and shape permits).

**Scenario 2:** As per retrofit plans – all gas communal heating replaced with large scale Air Source Heat Pumps.

In this scenario, at 2027 a 61% reduction in emissions is achieved from the 2020 baseline. This is achieved through the same measures as scenario one, with the exception that all communal gas boilers are replaced with low carbon alternatives across all estates.

If we apply the proportionate direct greenhouse gas removals (GGR) from the Corporation's land based assets (described on page 13), a further 46% reduction may be applied to each scenario.



Scope 1 and 2 CO<sub>2</sub> emissions reduction strategies to 2027. Figures suggest emissions are carbon negative by 2027 only if all gas communal heating is changed to Air Source Heat Pumps by 2027.



# Carbon pathway to 2027 for scope 1 and 2 emissions | Scenario 1

## Scenario 1 achieves a 33% reduction from the CO<sub>2</sub> baseline

The graph to the right shows the carbon pathway for Scenario 1 for scope 1 and scope 2 emissions to 2027. The blue band represents emissions related to electricity consumption every year and the dark blue within it represents the emissions due to gas use. The yellow band below zero represents the emissions offset by generating renewable energy onsite.

Net emissions reductions from 2020 = 49% (i.e. 51% of emissions, or 2,554 tCO<sub>2</sub>/yr, remain in 2027, due to emissions associated with grid electricity).

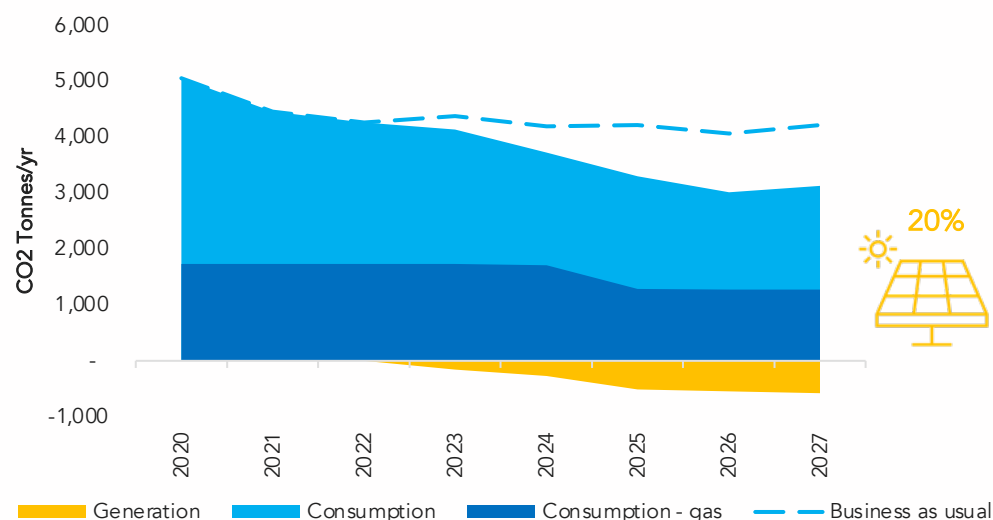
## Key strategies

Key priorities for reducing scope 1 & 2 emissions in this Scenario will be:

- Stop using gas for communal heating as soon as possible (this Scenario assumes Middlesex Street and York Way Estate remain on gas communal heating).
- Install roof insulation early
- Install as much photovoltaics on the roofs as possible (at the same time, or after, roof insulation).
- Make communal lighting more efficient – upgrade to LED lighting and review lighting controls for each estate.
- Review controls of energy systems – is there scope to improve controls of communal heating systems?
- Review, and replace if necessary, insulation on pipework of communal heating systems.

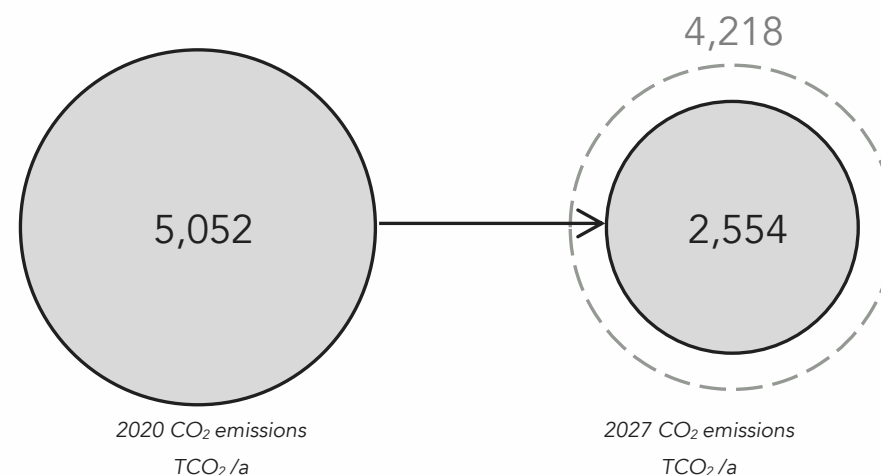
## What happens if we carry on as usual?

The bubbles to the right show whole housing stock emissions in 2020 and potential emissions in 2027, including the offset from the solar generation on site. The dotted circle shows that expected emissions in a "Business As Usual" scenario (i.e. no improvements to the building fabric, heating systems and no solar PV installed on the roofs). The reduction in emissions in this case are attributed to grid electricity becoming less carbon intensive in future years.



Annual CO<sub>2</sub> emissions balance: Scope 1 & 2 emissions.

The icon to the right shows percentage emissions offset compared to emissions from consumption



Total scope 1 & 2 CO<sub>2</sub> emissions current and 2027. The combination of fabric measures, removal of gas and solar generation results in emissions reductions of 51% compared with 2020. The dotted line indicates 2027 emissions in a 'Business as usual' scenario where no retrofit action is taken.



# Carbon pathway to 2027 for scope 1 and 2 emissions | Scenario 2

## Scenario 2 achieves a 62% reduction from the CO<sub>2</sub> baseline

The graph to the right shows the carbon pathway for Scenario 2 for scope 1 and scope 2 emissions to 2027. The blue band represents emissions related to electricity consumption every year and the dark blue within it represents the emissions due to gas use. The yellow band below zero represents the emissions offset by generating renewable energy onsite.

Net emissions reductions from 2020 = 62% (i.e. 38% of emissions, or 1,986 tCO<sub>2</sub>/yr, remain in 2027, due to emissions associated with grid electricity).

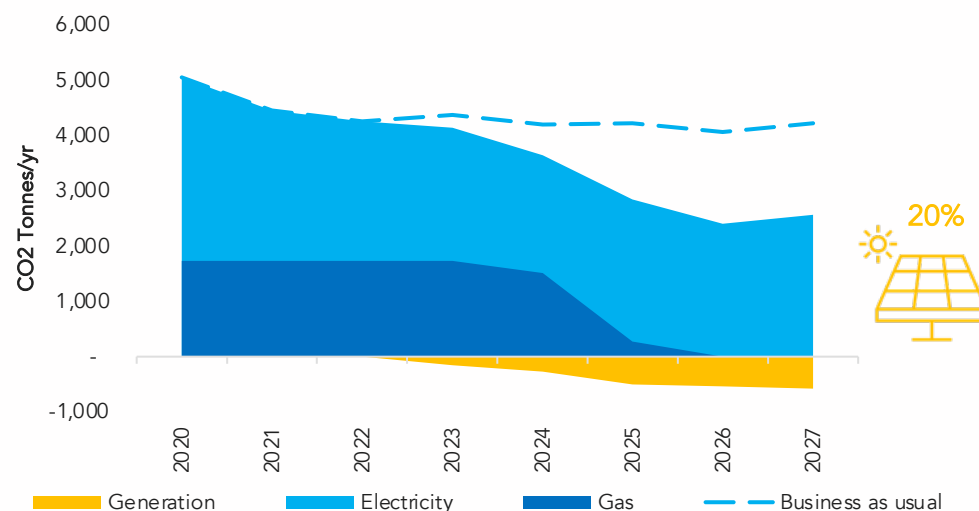
### Key strategies

Key priorities for reducing scope 1 & 2 emissions in this Scenario will be:

- Stop using gas for communal heating on all estates as soon as possible
- Install roof insulation early
- Install as much photovoltaics on the roofs as possible (at the same time, or after, roof insulation).
- Make communal lighting more efficient – upgrade to LED lighting and review lighting controls for each estate.
- Review controls of energy systems – is there scope to improve controls of communal heating systems?
- Review, and replace if necessary, insulation on pipework of communal heating systems.

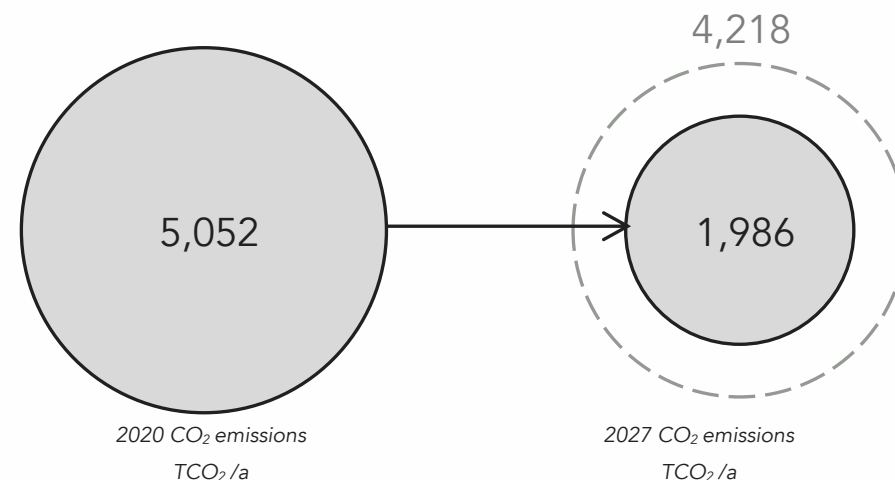
### What happens if we carry on as usual?

The bubbles to the right show whole housing stock emissions in 2020 and potential emissions in 2027, including the offset from the solar generation on site. The dotted circle shows that expected emissions in a "Business As Usual" scenario (i.e. no improvements to the building fabric, heating systems and no solar PV installed on the roofs). The reduction in emissions in this case are attributed to grid electricity becoming less carbon intensive in future years.



Annual CO<sub>2</sub> emissions balance: Scope 1 & 2 emissions.

The icon to the right shows percentage emissions offset compared to emissions from consumption



Total scope 1 & 2 CO<sub>2</sub> emissions current and 2027. The combination of fabric measures, removal of gas and solar generation results in emissions reductions of 86% compared with 2020. The dotted line indicates 2027 emissions in a 'Business as usual' scenario where no retrofit action is taken.



# Summary of carbon emissions reduction potential by 2040

## Achieving the 2040 target for Scope 1, 2 and 3 emissions

Collectively, the measures outlined in the retrofit plans could achieve emissions reductions of approximately 86% from the 2020 baseline by 2040. This includes Scope 1, 2 & 3 emissions (from energy controlled by both the Corporation and by both tenants and leaseholders).

### Key strategies modelled

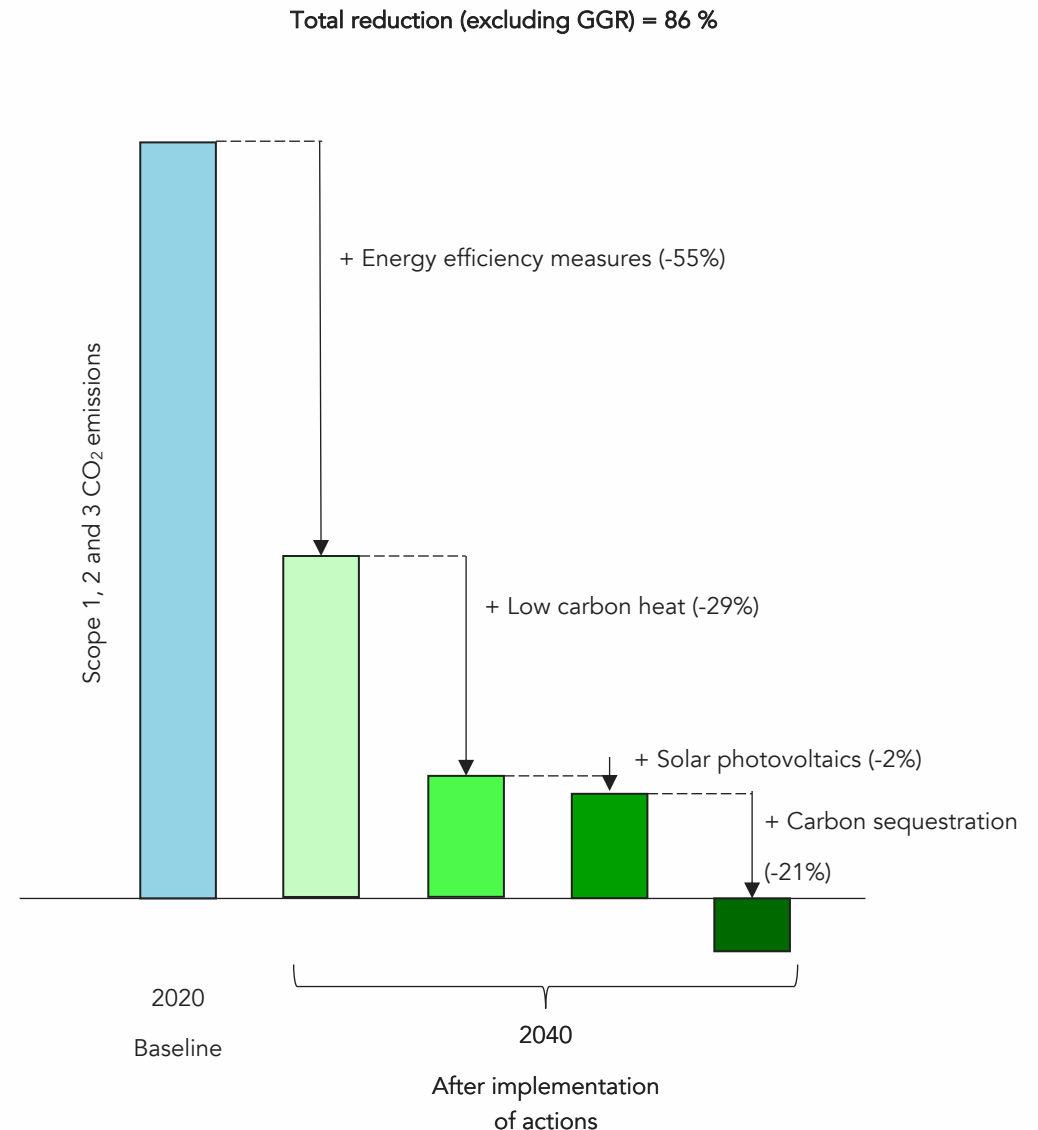
The key priorities for reducing scope 3 emissions (some of these will also reduce scope 1 and 2 emissions in communally heated blocks) will be:

- Remove individual gas boilers in all properties and replace with low carbon heating alternatives.
- Improve the energy efficiency of the fabric of the buildings through:
  - Replacing windows with triple glazing,
  - Installing wall insulation where possible
  - Install roof insulation (where not already undertaken)
  - Improve air-tightness of homes
  - Installation of floor insulation,
- Improve ventilation – preferably through whole dwelling mechanical ventilation with heat recovery,
- Install waste water heat recovery to showers and baths.

The approximate emissions reductions that could be achieved through utilising the above measures are illustrated in the graph on the right.

### How far to go?

There is scope, within the carbon accounting protocol of the Climate Action Strategy, to choose not to go as far as the carbon emissions reductions suggested here. However, it is important to consider that a future of low carbon heat (a likely non-negotiable by 2040) will likely rely on energy efficiency to make it feasible. This should be factored into decisions relating to targets and ambition.



Scope 1, 2 and 3 CO<sub>2</sub> emissions reduction strategy to 2040. Provisional figures suggest emissions are practicably carbon negative by 2040 (figures to be checked and verified).

Note: solar photovoltaics have an apparently small impact due to the low carbon intensity of the grid electricity they are offsetting. However, they provide a vital contribution of renewable electricity to the grid.



# Carbon pathway to 2040 for scope 1, 2 & 3 emissions

## This pathway achieved an 86.5% reduction by 2040

The graph to the right shows the carbon pathway for the scope 1, 2 and 3 emissions to 2040. The blue band represents emissions related to electricity consumption and the dark blue within it represents the emissions due to gas use. The yellow band below zero represents the emissions offset by generating renewable energy onsite. This is enough to offset approximately 12% of the emissions due to consumption in 2040.

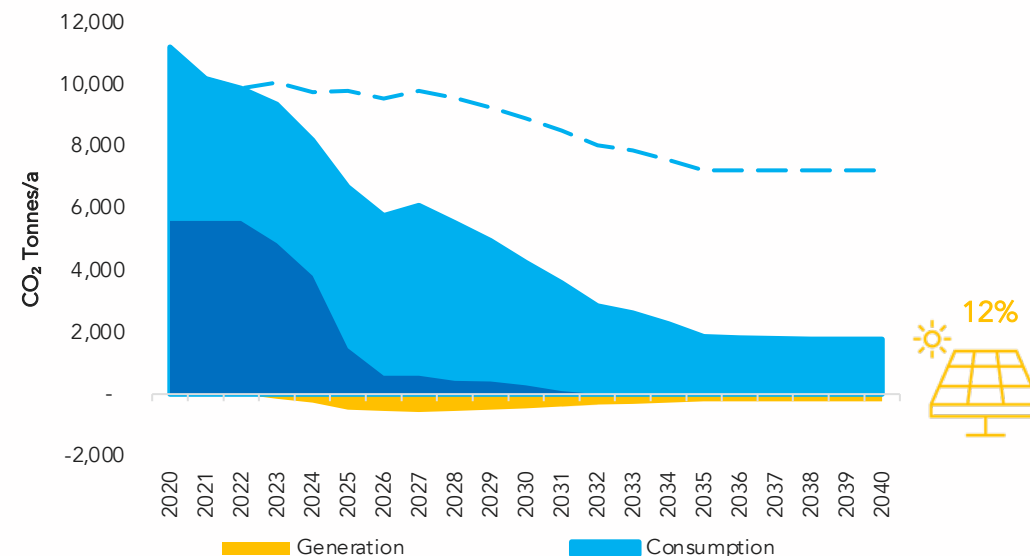
Our study shows that emissions we could achieve emissions reduction of 86.5% by 2040 (i.e. 13.5% of 2020 emissions including the offset from the solar generation on site). Remaining emissions are due to emissions from grid electricity – with electrical demand being greater than the maximum possible renewable energy generation onsite.

We have not factored in the potential carbon sequestration that the Corporation may wish to use from their land based assets. If this were to be applied in a proportional way to this pathway, net zero carbon for the housing portfolio would be achieved.

Our analysis is based on the best measures that we consider technically feasible for each estate. Different blocks present different challenges and opportunities, and each will require further site specific, detailed feasibility studies before determining the optimum approach.

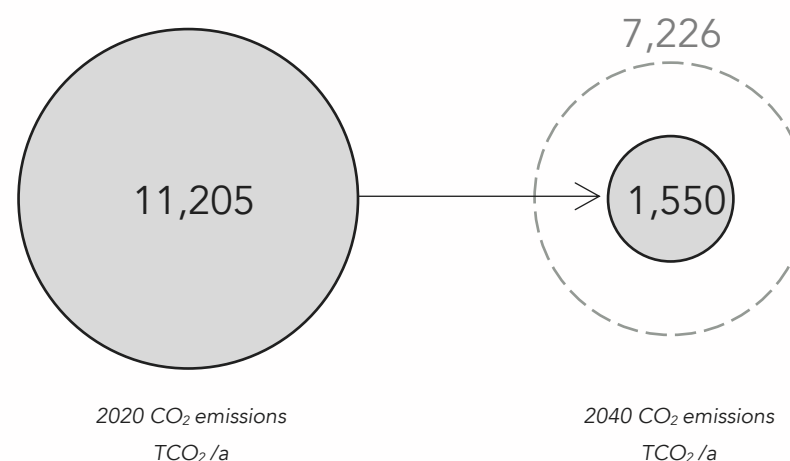
## What happens if we carry on as usual?

The bubbles to the right show the baseline emissions in 2020 and potential emissions in 2040. The dotted circle represents BAU emissions (i.e. no improvements to the building fabric, heating systems and no solar PV installed on the roofs). In this case, emissions in 2040 would be 64% of 2020 emissions. The reductions would be due to expected reduction in the carbon intensity of grid electricity.



Annual CO<sub>2</sub> emissions balance: Scope 1, 2 and 3 emissions.

The icon to the right shows percentage emissions offset compared to emissions from consumption



Total Scope 1, 2 and 3 CO<sub>2</sub> emissions current and 2040. The combination of fabric measures, removal of gas and solar generation results in emissions reductions of 86.5% compared with 2020. The dotted line indicates 2040 emissions in a 'Business as usual' scenario where no retrofit action is taken (improvements are due to reduction in grid CO<sub>2</sub> emissions only).



## 5.0 Costs, funding and Finance

This section presents the results of the cost analysis undertaken. It also discusses opportunities within the current replacement and maintenance programme for undertaking retrofit works. Potential sources of funding are presented.



## Costs per unit for net zero by 2027 (scope 1 and 2) and path to net zero 2040 (all emissions)

### Costs per unit

The cost estimates below indicate the estimated cost of retrofitting existing housing to support the Corporation's net zero carbon targets for 2027 (scopes 1 & 2) and for 2040 (scope 3):

- 2027 – Average cost of £9,100 per property, with a range of £1,000 to £43,900 for labour and materials. (For communally heated properties this is an average cost of £15,200 per property, with a range of £9,700 to £41,900).
- 2040 – Average cost of £44,000 per property for labour and materials (with a range of £27,400 to £64,900).

### Methodology

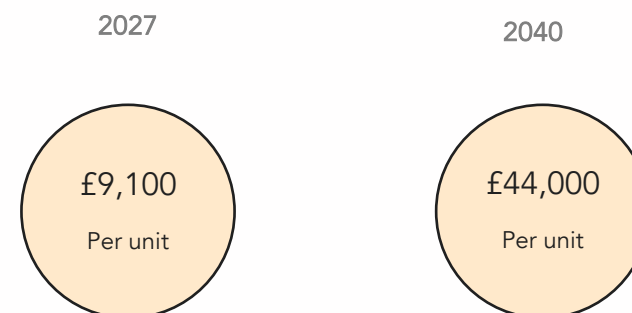
We have applied a cost per measure per unit figure to all measures applicable to each property, for both the "good" and the "best" versions of the technology/measure.

Cost per measure per unit figures are largely based on estimates from the work Parity Projects have produced for the London Retrofit Action Plan, which reference a mixture of unit sizes and conditions. Costs are based on labour and materials only and exclude for example, design fees, prelims, overheads and profit, enabling works, ancillaries etc). Currently cost estimates do not reflect cost uplifts that may be associated with listed buildings such as the Barbican or the Golden Lane Estate. This would likely affect cost of replacement windows and ventilation system costs.

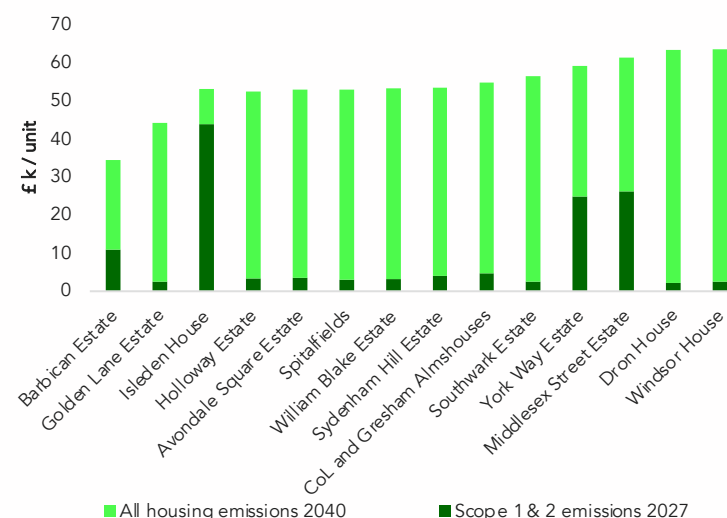
### Cross checking with London Retrofit Action Plan

The Parity Projects analysis for the London Retrofit Action Plan gave two estimates (again, costs are based on labour and materials only):

- Interim target (EPC B): average cost per home £13,000, and
- Net zero target: average cost per home of £25,900 (with a range of £13,000 - £352,000).



Average cost of implementing net zero carbon action plans for housing, for 2027 and 2040.



Projected cost per unit, by estate

Note - Costs are based on sources that reference a mixture of unit sizes and conditions. Cost figures are budget costs, and need to be reviewed and adjusted for measures already installed, and for listed buildings.



Costs breakdowns for the path to net zero 2040 (all emissions)

Costs per package and per measure type

The figure to the right shows the cost breakdown over time. Top right shows the breakdown per package of works, and the years shown underneath give indicative amounts per year. This shows that most of the low carbon heat and demand flexibility and all of the energy generation measures are recommended to be installed before 2027, in package 1 (note package 1 impacts scope 1, 2 and 3 emissions due to the inclusion of fabric efficiency measures). Costs for measures that just include Scope 1 and 2 are detailed on page 65).

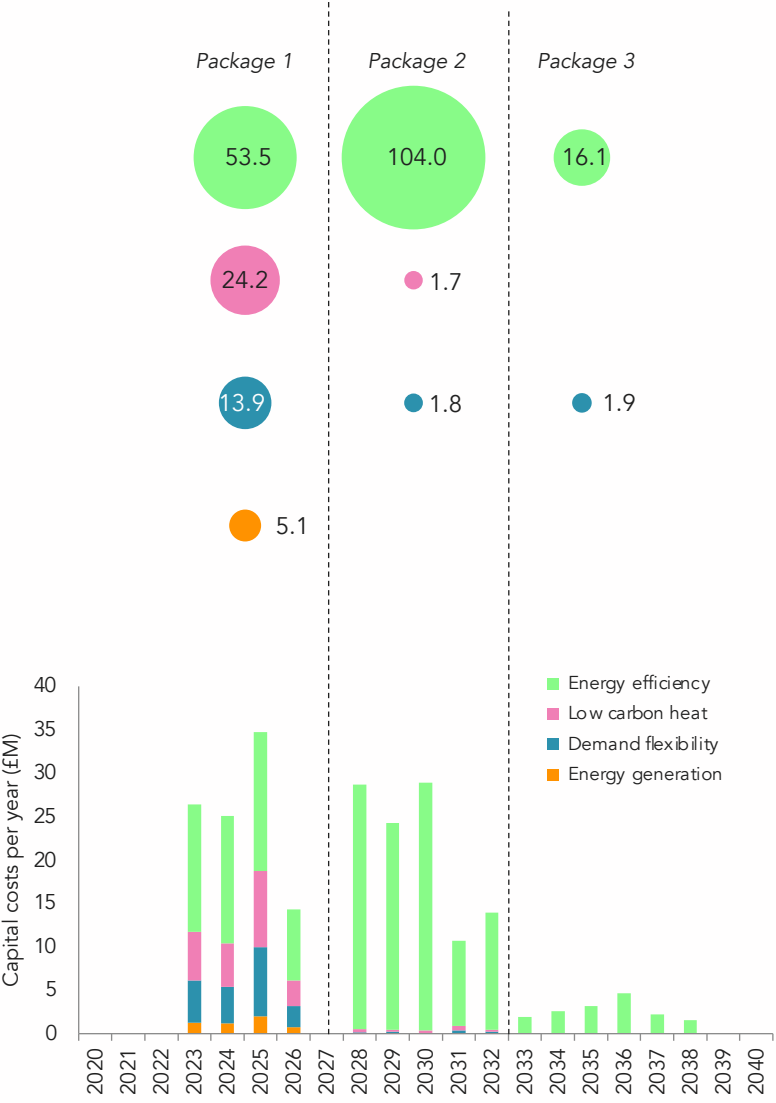
Costs per measure per unit

The figure below left indicates the cost per measure per unit (of units where the measure has been installed), and on the right total costs per measure to 2040. This indicates that wall insulation is the most expensive per unit but the glazing will be the most expensive overall. Low carbon heat measures are expensive per unit, but the total cost ranks lower as not all units are affected.



Projected costs by i) per measure per unit, and ii) per measure total across portfolio.

Note - Costs are based on sources that reference a mixture of unit sizes and conditions. Cost figures are budget costs for labour and materials, and need to be reviewed and adjusted for measures already installed, and for listed buildings.



Projected costs per package and per measure type. Years within each package are indicative, and may be adjusted to match priorities and funding streams. Measures that should be tackled concurrently are noted in section 2.



Cost benefits

Cost benefits

The retrofit measures recommended as part of this action plan are help reduce carbon emissions. Some measures cost more per tonne of carbon saved than others, but using a £/tonne CO<sub>2</sub> saved metric alone is not sufficient to decide which measures to prioritise over others.

We have not broken down energy efficiency into separate measures, since most measures should not be carried out in isolation (e.g. window replacement should always be carried out with improved ventilation). The goal is a whole house retrofit, a better means of prioritisation would be logical sequencing.

Energy efficiency and demand flexibility measures

Our calculations estimate that for every £1,000 spent on energy efficiency and demand flexibility, 40.5 kg of CO<sub>2</sub> will be saved.

Energy efficiency and demand flexibility deliver other benefits, including improved comfort, healthier indoor environment, reduced energy bills and greater resilience to climate change.

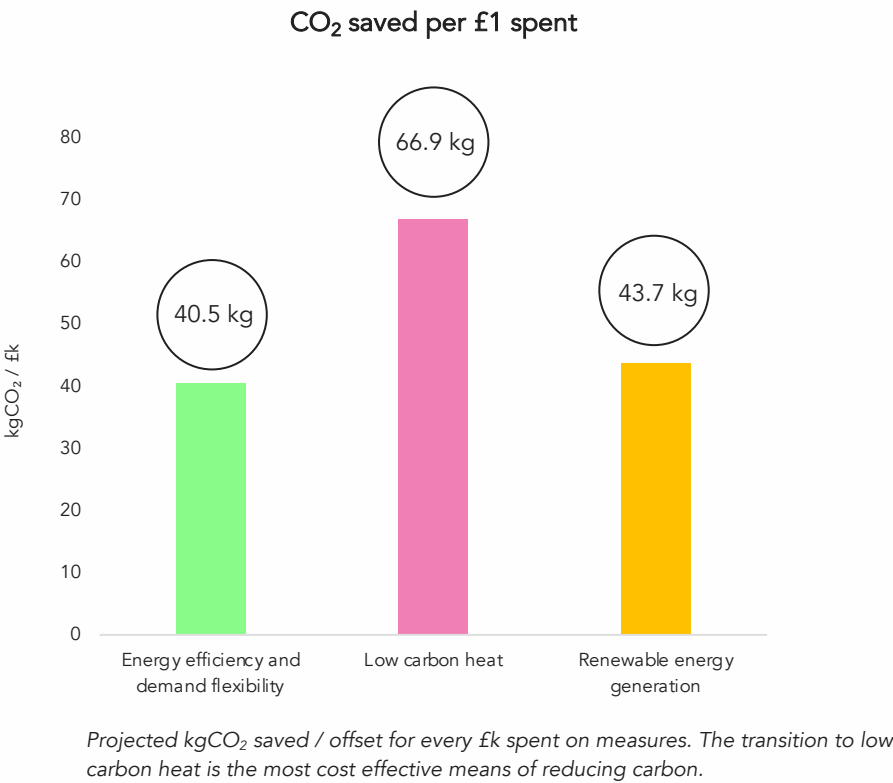
Removal of gas

Our calculations estimate that for every £1,000 spent on replacement of gas heating, 66.9 kg of CO<sub>2</sub> will be saved.

Renewable energy generation

Our calculations estimate that for every £1,000 spent on renewable energy, 43.7 kg of CO<sub>2</sub> will be saved.

Assessing the cost benefit of renewable energy in a £/tonneCO<sub>2</sub> metric is problematic. This is because the amount of CO<sub>2</sub> it offsets is directly related to the carbon intensity of electricity in the grid. With each year, the national grid’s energy mix becomes less reliant on fossil fuels and the carbon intensity of electricity reduces. This is why the graph on page 54 shows a reduction in CO<sub>2</sub> savings from PV towards 2040. Local renewable energy generation is a necessary part of our future energy mix.



Energy efficiency and demand flexibility	Low carbon heat	Renewable energy generation
<ul style="list-style-type: none"><li>Improved comfort</li><li>Improved indoor air quality</li><li>Reduced damp and mould</li><li>Better acoustic performance</li><li>Reduced energy bills</li><li>Greater resilience to climate change</li></ul>	<ul style="list-style-type: none"><li>Improved local air quality</li><li>No gas safety issues</li></ul>	<ul style="list-style-type: none"><li>Source of income / reduced energy bills</li><li>Contribution of local renewable electricity grid.</li></ul>



## Internal sources of funding

### Current City of London Corporation climate change funding

A budget of £6m has been identified for the period 2021-2027 to contribute to the funding of low carbon retrofits outlined in this Action Plan.

### Synergy with maintenance and replacement programme

The City of London Corporation invests in their buildings through scheduled maintenance and replacement of building elements due for renewal, through ad-hoc replacement when elements fail, and through bringing homes up to the Decent Homes standard.

The funding for these works generally comes from rent collected from tenants and contributions from leaseholders.

Page 92  
There is a lot of overlap between the measures that are recommended as part of this Retrofit Action Plan and measures carried out as part of standard maintenance and replacement works – e.g. replacement of windows and heating systems. If planned replacements are carried out with components of the right type and specification, cost efficiencies can be found and monies spent on planned maintenance and replacement will partially fund the Retrofit Action Plan.

Additionally, planned maintenance and replacement might present opportunities for applying energy efficiency measures at the same time as carrying out other works, and thereby share some of the fixed costs. For example, re-rendering a wall would be an ideal time to apply external insulation. The extra costs are just the insulation material and labour to secure the insulation to the wall.

### Carbon offset fund

The City of London Corporation has access to monies collected through the City of London's carbon offset fund. It is estimated that £3.6 million will be available to spend on existing housing over the next 2-5 years. Since this fund is made up largely of developer contributions paid at the point of completion of new developments, estimating future funding from this source is difficult.

### Green Homes Grant Local Authority Delivery: successful local authorities

A list of the local authorities that have been allocated funding to support upgrading homes for low income families.

From: [Department for Business, Energy & Industrial Strategy](#)  
Published 26 November 2020  
Last updated 23 March 2021 — [See all updates](#)

Applies to: **England**

#### Related content

[Getting a Green Deal: information for householders and landlords](#)

[Low carbon heating technology innovation grant scheme](#)

[Green Homes Grant Local Authority Delivery scheme: Phase 1B: entering a bid](#)

[Becoming an authorised Green Deal organisation](#)

#### Documents



Phase 1A successful bids: local authorities

[View online](#) [Download CSV 1.19 KB](#)



All buildings (example above of Eric Wilkins House) require regular maintenance and periodic replacement. Synergy between this programme and the Housing Net Zero Retrofit Action plan should be sought.



## Opportunities in the current replacement and maintenance programme

### Using allocated funds efficiently to 2027

The City of London Corporation currently has planned maintenance and replacement works planned that impact energy efficiency and energy supply. The works are funded across different estates for the period up to 2022 and are being planned for the period to 2027.

Funded works for the period to 2022 are listed in the table on the right – totalling a spend of approximately £46,040,000 over 2-4 years. Note – these figures are not directly comparable with our cost estimates as they represent total costs, and our estimates are based on labour and materials only). Also, the Corporation's spending on maintenance and replacement varies year on year.

We recommend that monies spent contribute efficiently to the zero carbon retrofit agenda. Specifically:

that maintenance and replacement works carried out are consistent with a zero carbon specification (rather than a building regulations specification).

For projects in design stage, planning stage, or tender stage, where there is scope, thermal performance specifications should brought in line with what we recommend in the action plan.




### George Elliston and Eric Wilkins House

A sum of money has been allocated for the refurbishment of George Elliston House and Eric Wilkins House (£3,000,000). This is a great opportunity to retrofit these blocks for zero carbon, starting with the retrofit plan for Archetype 3. Our model predicts a cost of approximately £3,400,000 for the package of works (labour and materials) identified in the Action Plan.

### Decent Homes

An additional £5.8 million has been identified for bringing homes up to the Decent Homes standard. Efficiencies could be found here – for example installing internal wall insulation when kitchens are replaced.

### Current funding allocated through capital works programme

	Measure	Estate	Amount allocated
	Communal lighting	Avondale Square Estate - complete	£340,000
	Heating replacement and new communal heating	Golden Lane Estate	£14,000,000
	Window replacements	- Southwark Estate (Pakeman, Stopher and Sumner buildings) - William Blake Estate - Holloway Estate - Dron House (complete) - Windsor House - Sydenham Hill Estate - Golden Lane Estate (allocated funding unknown)	£21,000,000
	Roof repairs	(various estates)	£7,700,000
	Major refurbishment	George Elliston House Eric Wilkins House (both Avondale Square Estate)	£3,000,000
Total			£46,040,000

*Funding already allocated for works taking place 2020-2022 for replacement and maintenance measures directly related to energy performance.*



## External sources of funding

### Government funding

There are currently two Government grant schemes which could be used to help fund this Housing Retrofit Net Zero Action Plan.

- The **Green Homes Grant Local Authority Delivery Scheme (LAD)** is for Local Authorities to apply and is aimed at helping households with an income under £30,000. Parts 1A and 1B are now closed but Parts 2 is now open, and Part 3 is due to open soon.
- The **Social Housing Decarbonisation Fund** is for social landlords including Local Authorities. It is very significant, i.e. £3.8bn.
- Heat Networks Investment Project (HNIP) is a government funding programme aiming to increase the number of heat networks being built.

Page 64 The **Sustainable Warmth Fund** will be available, but the majority of funds (90%) will go to privately owned and rented homes.

The **Green Homes Grant LAD** scheme and the **Social Housing Decarbonisation Fund** are both active and fairly recent Government schemes which the City of London Corporation could seek to benefit from in the near future. Although additional grant funding should be made available in the future, there is no certainty at this moment in time that it will be the case. The **Green Heat Network Fund (GHNF) Transition Scheme** supports the commercialisation of low-carbon heat network projects and is open to applications in July 2021. The **Sustainable Warmth competition** will be open to Local Authorities to help them improve the efficiency of low-income households.

### Leveraging private finance

Under the 'Catalysing Green Finance' initiative the London Sustainable Development Commission are working with the Green Finance Institute to set up the London Future Finance Facility.

Community energy schemes may offer opportunities for private funding of measures such as renewables, that can offer a return on investment.



*The Green Finance Institute's Coalition for the Energy Efficiency of Buildings and UKGBC's Accelerator Cities programme publishes Retrofit funding propositions earlier this year. The report also includes very useful references on page 13.*



*The Energiesprong approach (above the Nottingham scheme by Melius Homes) provides comfort improvements as well as energy cost savings for the residents. They use these benefits to fund the improvements over the long term.*



## Bringing it all together - headlines costs for Net Zero by 2027

### Total cost for 2027 target – £46,000,000 (labour and materials)

We estimate the cost of implementing the Scope 1 and 2 measures across the estates to be £46million for labour and materials (this covers communal heating replacement, photovoltaic panels, lifts and communal lighting). We recommend roof insulation is added to roofs at the same time as PV, at a further cost of approximately £21.6million.

When looking to understand how this could be funded, we have considered both the internal and external sources of funding discussed on previous pages. Funding estimates are expressed in ranges, which reflect the uncertainty surrounding the funding that could be secured:

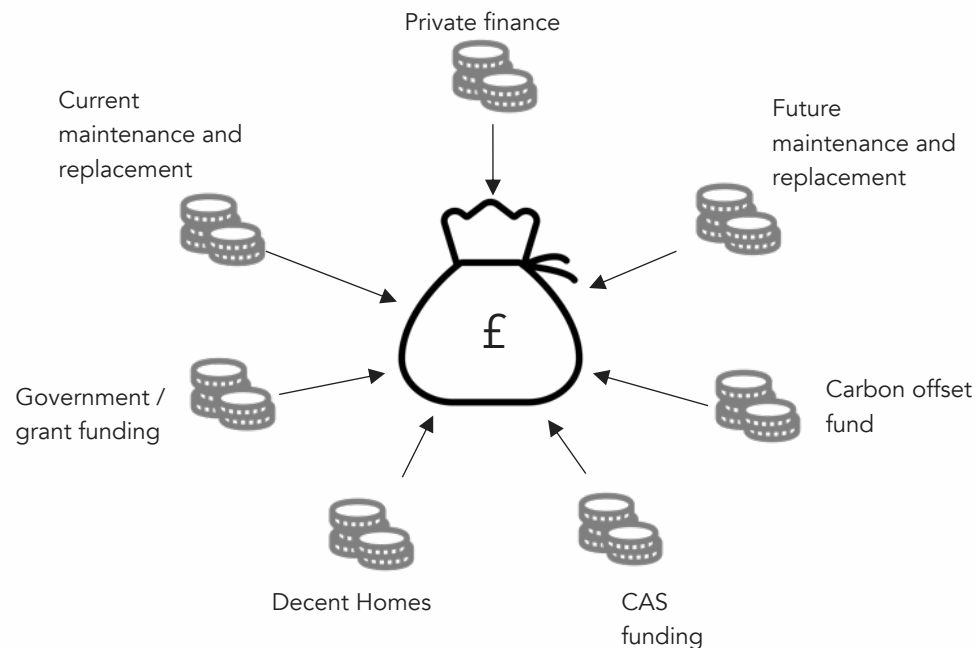
- Maintenance and replacement (currently allocated) - £25 million (this reflects the monies allocated for heating system replacements at the Golden Lane Estate, the major refurb at George Elliston House and Eric Wilkins House, the roofing repairs at various estates and the lighting replacement at Avondale Square).

Maintenance and replacement (future funding to 2027) - We have estimated, based on the spend 2020-2022, you may spend £4-16million (the Corporation should refine this if possible).

- Climate Action Strategy funding - £6-10million (as advised by the Corporation).
- City Corporation's carbon offset fund - £3.6million available over the next 2-5 years (as advised by the Corporation).
- Government grant funding - £1-10million (estimate based on upcoming government schemes. There is much uncertainty around how much will be available).

### Total cost 2040 – £221,000,000 (labour and materials)

We estimate the cost of implementing the "Package 1, 2 and 3" measures across the estates (2021-2040) to be £221,000,000 for labour and materials.



Potential funding sources for measures

#### Notes on costs

Our cost estimates are based on cost per measure per unit figures derived from estimates from the work Parity Projects have produced for the London Retrofit Action Plan. As such, more detailed cost assessments should be carried out for each block or estate at more detailed design stages.

Costs are based on labour and materials only and exclude for example, design fees, prelims, overheads and profit, enabling works, ancillaries etc). Currently cost estimates do not reflect cost uplifts that may be associated with listed buildings such as the Barbican or the Golden Lane Estate. This would likely affect cost of replacement windows and ventilation system costs.



## 6.0

# Prioritisation and other recommendations



This section includes recommendations for next steps and how to take things forward.



# How to prioritise and what to start with

## Prioritisation

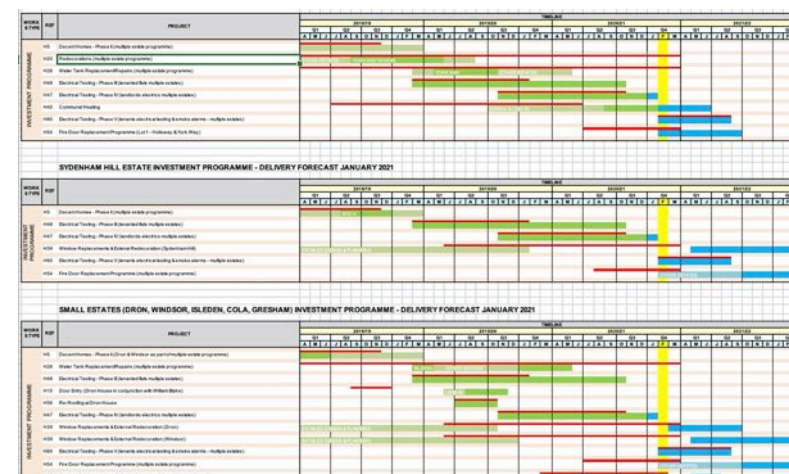
The scale of the retrofit challenge is significant. Over the next 19 years, most if not all of the 5,028 homes managed by the City of London Corporation will have to undergo some form of retrofit in order to put them on the right track towards Net Zero. The cost of doing this is also significant and is only partially funded at present so the question of prioritisation makes sense. Different logics can be followed, for example:

- The current **maintenance and replacement programme** could set the priorities both in terms of buildings to be addressed and type of work taking place. This would make sense as some heating systems or windows need replacing anyway.
  - The biggest **carbon emitters** (per m<sup>2</sup> or total) could be addressed as a priority as reducing their emissions will help to save very significant amounts of cumulative emissions, even if they have a comparable goal.
- The issue of **fuel costs and fairness** could give priorities to the worst performing buildings in terms of energy costs: this would assist residents directly while helping the City of London Corporation to comply with current or future EPC obligations (e.g. EPC B or C by 2030).

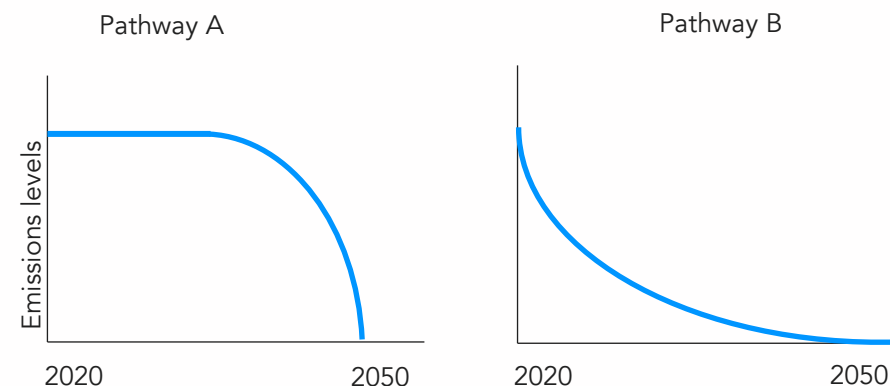
It is for the City of London Corporation to decide on the most suitable way to establish priorities. Whichever method is being selected what matters is that each intervention forms part of a well thought though, Net Zero compliant, long term renovation plan.

## Getting started

It is also crucial to get started on this 19-year programme. Our recommendation would be to pick at least one the archetypes and use it to develop detailed whole house retrofit plans for each building. They will derive from the confrontation of the archetype's whole house retrofit plan template to specific constraints and opportunities for the building. And obviously, our recommendation would be to then pick the most natural candidate building and undertake design, consultation and retrofit works.



Extract of the maintenance replacement programme: it provides a natural priority for retrofit works.



**Cumulative carbon is more critical than a target date for zero carbon:** Two emissions reductions pathways that achieve zero carbon emissions by 2050. Pathway A emits twice as much carbon as pathway B.



# Energy efficiency

## The homes with the highest energy consumption

One way of prioritising energy efficiency measures is to identify the poorest performing homes.

This can be done indicatively through EPC data (not yet available) or through metered energy use data. Utilising a combination of the two may be the best approach.

We analysed tenant gas consumption through use of BEIS data (postcode statistics) and normalised it by the internal area of the units. From this we were able to ascertain an indicative space heating demand for each block (how much gas is consumed to heat each block on average and a reflection of fabric efficiency), in kWh/m<sup>2</sup>/yr.

Our analysis shows the blocks listed to the right have relatively high space heating demand (above 100 kWh/m<sup>2</sup>/yr) which is above the threshold we consider appropriate for low carbon heat. These blocks would be a logical prioritisation for energy efficiency measures over other blocks, particularly Holloway Estate (consistently low fabric efficiency), Sydenham Hill Estate, and Windsor House (selected as they have the most units).

Energy efficiency measures should be considered a priority over low carbon heat for these blocks, however, ideally whole house retrofit would be undertaken to include low carbon heat in addition. George Elliston and Eric Wilkins House are expected to undergo a full refurbishment in 2022. This is a great opportunity to retrofit these blocks for zero carbon, starting with the retrofit plan for Archetype 3.

## Energy efficiency for the 2027 target

Some energy efficiency measures are suggested in Package 1 of our archetype retrofit plans. These primarily relate to the installation of roof insulation on blocks. This is because we recommend photovoltaic panels are installed on as many roofs as possible in Package 1 also, since this helps directly towards the 2027 target.

Block	Estate	Indicative space heating demand (kWh/m <sup>2</sup> /yr)	No. units
Barnersbury House	Holloway Estate	100+	18
Bunning House	Holloway Estate	100+	18
Fairweather House	Holloway Estate	100+	41
Hilton House	Holloway Estate	100+	24
McMoran House	Holloway Estate	100+	11
Whitby Court	Holloway Estate	150+	64
McAuley Close	William Blake Estate	150+	36
Lammas Green	Sydenham Hill Estate	100+	57
Otto Close	Sydenham Hill Estate	150+	30
City of London Almshouses	Ferndale Road	100+	43
Gresham Almshouses	Ferndale Road	100+	8
Colechurch House	Avondale Square Estate	100+	62
Tovy House	Avondale Square Estate	100+	52
Pakeman House	Southwark Estate	100+	56
Blake House	William Blake Estate	100+	48
Windsor House	Windsor House	100+	104

List of all blocks with the poorest fabric efficiency (as per our analysis), and above the threshold considered appropriate for low carbon heat. Priority could be given to the Holloway Estate, Sydenham Hill Estate and Windsor House (shaded in red), selected as the estates on the list with the most units.



# Low carbon heat

## Prioritisation

For the 2027 net zero carbon target, the Corporation may wish to prioritise the decarbonisation of communally heated blocs. This is discussed on pages 27 and 28.

For the 2040 target, all blocks and estates will need to have transitioned to low carbon heat, and the order in which they are tackled may depend on a variety of factors. One of which may be readiness for low carbon heat.

## Some blocks may be ready for low-carbon heat now

Where our analysis indicates that space heating demand is low enough, it may be acceptable to prioritise the swap to low carbon heating systems over energy efficiency, and plan for energy efficiency measures to come later.

As per the logic set out on page 29, we recommend the minimum space heating demand acceptable for the use of heat pump systems is 100 kWh/m<sup>2</sup>/yr, and the minimum space heating demand acceptable for the use of direct electric heating systems is 40 kWh/m<sup>2</sup>/yr.

The blocks listed to the right all indicatively have space heating demands of less than 75 kWh/m<sup>2</sup>/yr. They are grouped by storey height because storey height is a strong determinate of whether individual Air Source Heat Pumps would be suitable. Due to the indicative space heating demands being well below 100 kWh/m<sup>2</sup>/yr, the blocks in Table A may well be suitable for Air Source Heat Pumps without needing any additional energy efficiency measures immediately.

The blocks in Table B are mid-rise, and may upon further investigation, prove suitable for communal heat pumps. If not, they will likely be suitable for direct electric heating with some energy efficiency measures.

The blocks in Table C are high-rise, and therefore unlikely to be suitable for a heat pump system. Additional energy efficiency measures are likely to make these properties suitable for direct electric heating systems.

Table A: Low-rise – may be suitable for individual Heat Pumps with no or minimal energy efficiency measures

Block	Estate	No storeys
Longland Court	Avondale Square Estate	4
Markstone House	Southwark Estate	4

Table B: Mid-rise – may be suitable for communal Heat Pumps with no or minimal energy efficiency measures

Block	Estate	No storeys
Collinson Court	Southwark Estate	8

Table C: High-rise – direct electric heating likely to be most suitable. Undertake all energy efficiency measures before installation

Block	Estate	No storeys
Centre Point	Avondale Square Estate	19
East Point	Avondale Square Estate	19
Eric Wilkins House	Avondale Square Estate	20
Proctor House	Avondale Square Estate	10
West Point	Avondale Square Estate	19
Great Arthur House	Golden Lane Estate	15

All the blocks listed above have an indicative space heating demand of less than 75kWh/m<sup>2</sup>/yr.



# Low carbon heat - Communal heating on HRA Estates

## Gas communal heating must be phased out

Communal heating features at the HRA estates Middlesex Street Estate, York Way Estate, Isleden House and Frobisher Crescent (Barbican Estate). These communal heating systems all utilise gas fired boilers as the source of heating. Transitioning to low carbon heat will put the estates on a trajectory to achieving the Climate Action Strategy zero carbon targets.

The communal heating networks at Middlesex Street Estate and York Way Estate are currently being replaced with new gas boiler systems. If we model that these gas systems remain until 2027 at least, the remaining carbon emissions at that date are significant (see page 54).

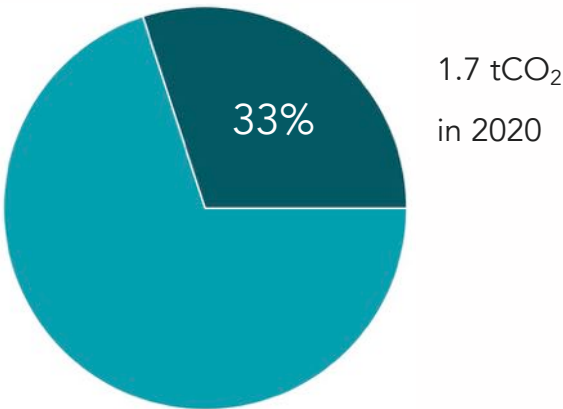
For the 2027 target of the Climate Action Strategy be achieved, the replacement of these systems would need to be paused, and design changes made so that large scale communal heat pump systems are installed instead. Without doing so, the zero carbon target for housing cannot be achieved.

## Improve controls and heat loss

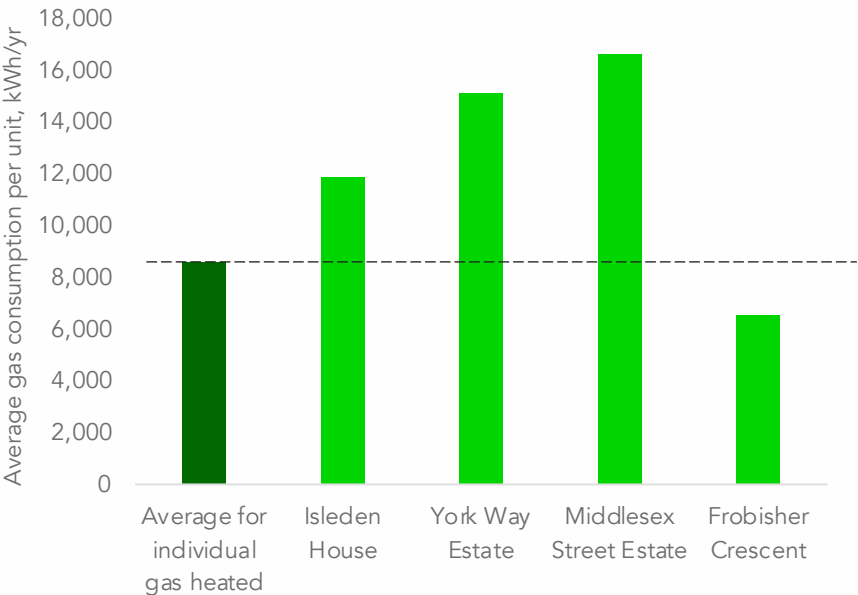
Our analysis shows that the communal heating systems consume approximately twice as much gas per dwelling than comparable individually heated units. This suggests that there are poor controls or high levels of heat loss in distribution. This should be investigated and improved.

## Golden Lane Estate

There are plans to reinstate the Golden Lane Estate district heating system. We recommend that this is only done with low carbon heating systems, preferably at low temperature distribution to improve efficiency.



One third of the Corporation’s housing Scope 1 & 2 emissions came from gas communal heating in 2020.



Three of the four gas communally heated estates use significantly more than the average consumption of individually gas heated units across the portfolio. Frobisher Crescent is the exception.



# Low carbon heat - Communal Heating on the Barbican Estate

## Barbican Estate

The majority of the Barbican Estate features electric underfloor communal heating. The associated emissions contribute to the City of London Corporation’s Scope 2 emissions. Emissions were approximately 2.5 ktCO<sub>2</sub>/yr in 2020 (49% of Scope 1 and 2 emissions from housing).

These emissions are set to drop year on year as the electricity grid decarbonises (see page 17). Therefore the Barbican Estate’s heating system should remain.

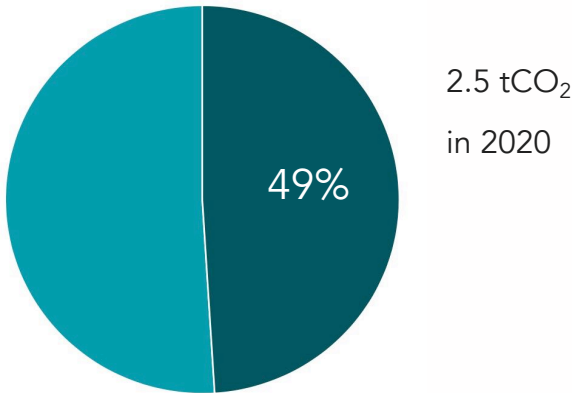
However, we understand from the experience of residents that the underfloor heating system may need optimising to ensure that electricity is used efficiently. Currently, many residents complain of too much heat in the winter (leading to open windows in mid-winter to cool flats), and not enough heat in shoulder seasons (spring and autumn). The residents have formed an Underfloor Heating Working Party which is looking in detail at how the controls can be optimised.

The issue is a complex one to solve. It’s not entirely technical – there is also the problem of resident expectations and comfort and these vary greatly. A summary of conversations with the Underfloor Heating Working Party can be found in the Appendices, together with some recommendations.

### Investigate reasons for large variation in heating per dwelling

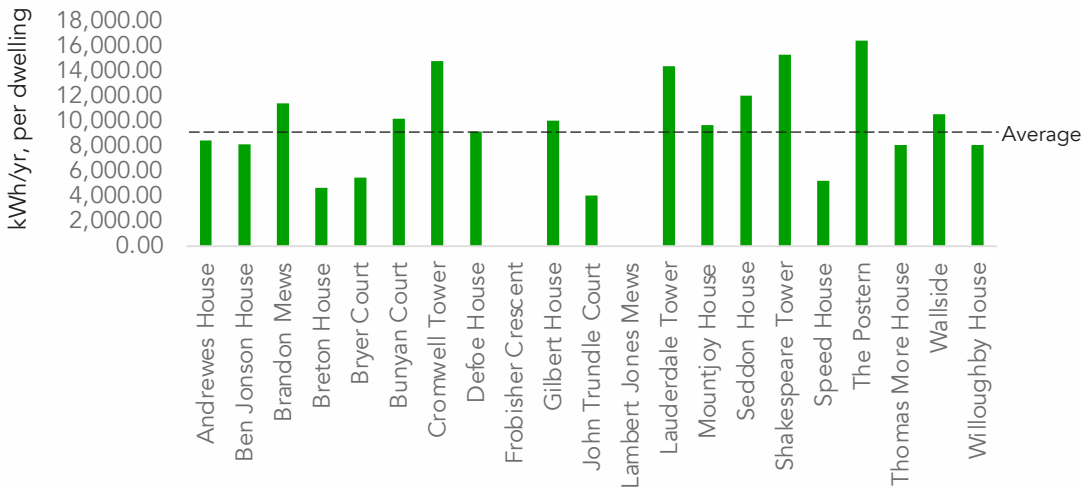
The graph on the right shows the metered electrical consumption, per dwelling, on a block by block basis at the Barbican. The range is large given that the controls are the same across every block. Further investigation of this might yield useful clues as to how to reduce energy consumption and emissions. For example obtaining reliable internal area data would allow normalisation for different sizes of flats.

It’s possible that the metering system is not complete and is labelled incorrectly - this should also be investigated.



One third of the Corporation’s housing Scope 1 & 2 emissions came from heating the Barbican in 2020.

Page 101



Metered electrical consumption for underfloor heating across the Barbican Estate per dwelling. While the control system is the same across all blocks, consumption varies widely. Metering should be checked to ensure all heating is picked up.



# Energy metering and data collection

## Improve quality of metering and review regularly

A good level of energy metering, with the right amount of detail, can really help deliver efficient and cost effective strategies for carbon reduction.

We have used metered energy consumption from the Corporation to determine Scope 1 and 2 emissions for housing (landlord energy use).

Going forward, metering of landlord energy could be improved through greater consistency in meter labelling and clearer end-energy uses.

Good quality energy data is extremely useful. It allows us to:

- make useful comparisons of energy use before and after retrofit. If energy savings aren't as large as expected, reasons for this can be identified – has something not been commissioned properly? Is it being used incorrectly?

Make useful comparisons between similar blocks and units. Are there any blocks with unusually high or low energy consumption? What could be going wrong (or right)?

For tenant energy consumption, BEIS gas and electricity by postcode statistics give annual average consumption by meter for a postcode. Given the size of the estates and blocks in the Corporation's housing portfolio, almost all estates have unique postcodes – sometimes multiple postcodes. This means data isn't muddled by consumption from non-relevant properties. Our analysis of the data from these datasets shows consistent energy consumption between similar blocks on a per meter basis, giving us confidence in these figures.

Energy metering is more useful than EPCs (Energy Performance Certificates) because it is based on actual energy consumed.

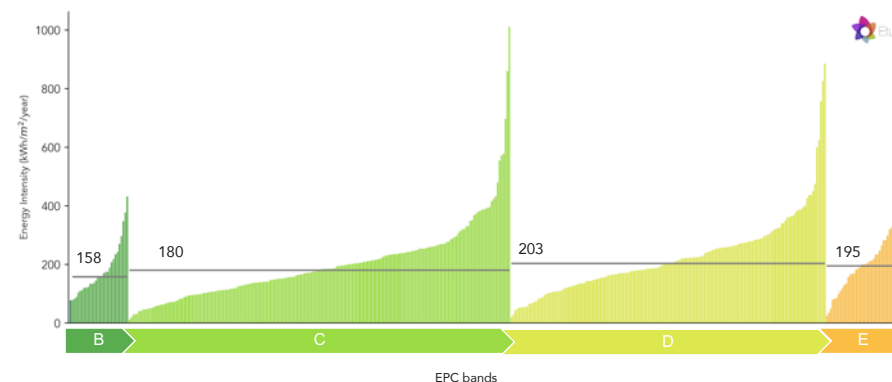
Additional recommendations regarding energy metering and data collection are suggested on the right.

## Collecting residents' experiences

In addition to energy data, qualitative data from residents is helpful in identifying energy issues, and rectifying them.

- ❑ Compare landlord electricity consumption on Avondale Square Estate for 2021 and 2022 with 2019 and 2020, in order to assess effectiveness of LED lighting installation.
- ❑ Check Barbican underfloor heating meters – are they labelled correctly, are all supplies to underfloor heating included?
- ❑ Create a consistent, clear metering strategy per estate – or across all estates

*Recommendations relating to energy metering and data collection*



### *Distribution of metered energy use from 420 dwellings in London*

This analysis of actual energy used in homes shows that improved EPC ratings are associated with some reduction in average energy use, but a limited one. For example, there is only a 22% reduction in total average energy use intensity from D- to B-ratings.

The mean total energy use\* in EPC band A is 161kWh/m²/yr, which is very high.



# Renewable energy

## Prioritisation

Some estates appear to have a greater area of suitable roof space for photovoltaic panels and therefore a greater potential for renewable energy generation and associated carbon emissions reductions.

Estates and buildings which should be considered for photovoltaic panel installation as a priority include:

- **Avondale Square Estate** - The Avondale Square Estate is a large estate with buildings with strong potential for photovoltaic panels. For example, Colechurch House, Brettinghurst House, Tovy House and Proctor House all have large areas of flat, unobstructed roof space (see right). Longland Court has a lot of available flat roof space, but overshadowing from the towers (Centre Point, East Point and West Point) will need to be assessed.
- **York Way Estate** - Similar to the Avondale Square Estate, the York Way Estate has large areas of clear roof space.
- **Southwark Estate** - Collinson Court and Markstone House show particular potential.
- **Golden Lane Estate** - The Golden Lane Estate appears to have good potential for photovoltaic panels, especially Crescent House. It is Grade II listed estate (and Crescent House Grade II\* listed). The listing will mean permission is required for panels, but it would be worth taking on the challenge.
- **Others** - Other estates with good potential for PV production include Middlesex Street Estate, Isleden House Estate, Windsor House, Lammas Green and Petticoat Square.

## Note

The potential output from photovoltaic panels across the 82 buildings in the Corporation’s portfolio have been estimated through a high level desk top study, and do not constitute detailed feasibility studies. These would be necessary to understand the true potential of each building.



Colechurch House, Tovy House and Proctor House on the Avondale Square Estate appear to have large, unobstructed roof areas suitable for photovoltaic panel installation.

	Potential annual output, MWh/yr
Avondale Square	1,000
Golden Lane	750
Southwark	650
Holloway	500
York Way Estate	450
Middlesex Street Estate	450

Estates with the largest renewable energy output potential. Renewable energy from photovoltaic panels can be used to power landlord electricity uses, directly offsetting grid electricity and associated carbon emissions.



# Why a whole house retrofit plan for each building is crucial

## A clear objective for each building, compliant with Net Zero

In order to achieve Net Zero, the approach to retrofit needs to anchor this objective as the end goal to be achieved by all buildings by 2040. Whole house plans specific to each building are likely to be both the most practical and successful way to set this target for each building, and ensure that it is compliant with the Net Zero carbon by 2040 commitment from the City of London Corporation.

## A long term renovation plan

Successful retrofit relies on a structured process including adequate assessment, design, installation and monitoring as set out within PAS 2035. A long term renovation plan also enables to plan ahead so that packages of work are coherent and complementary, and avoid 'carbon lock-ins'. Opportunities can easily be identified (e.g. current maintenance and replacement programme, void properties) and retrofit costs minimised

## The opportunity of a Building Digital Logbook

Alongside the long term renovation plan, a Building Digital Logbook should be developed to gather and retain all relevant information about the building. Together, they will what is referred to as the 'Building Renovation Passport' and should be accessible to tenants and leaseholders.

## Step 1: developing whole house retrofit plan templates

Whole house plan templates created for the main archetypes would:

- Be useful at a **strategic level** by developing an understanding of the measures, costs, skills and supply chain needed over the next 20 years. This information could be used to help support and build capacity, lever finance and build a business plan for retrofit programmes.
- Be useful for **each individual building** as it would provide them with a template which can then easily be made specific to each building.



A long term, step-by-step renovation plan is the most practical approach to retrofit in order to achieve a long term objective compliant with Net Zero. The above image shows an example used in Germany iSPF

### Core features of a building renovation passport

- Information on **the building's current condition and performance**, ideally supported by resident engagement.
- A **phased renovation plan** establishing a roadmap to the best possible carbon reduction.
- A **digital logbook** recording the works carried out and by whom, in-use performance data, and possibly drawings and additional information.



## Next Steps

### For 2027 target

- ❑ Develop plans for large scale roll out of photovoltaic panels across the estates' roofs. Most estates have good potential, but if priorities are sought the Corporation should prioritise installation at Avondale Square, Golden Lane, Southwark Estate, Holloway Estate, York Way Estate and Middlesex Street Estate since these have the greatest potential for energy generation.
- ❑ Simultaneously, plans for roof insulation across estates should be made with appropriate feasibility studies and permissions sought where appropriate (should be added before photovoltaic panels).
- ❑ Remove communal gas boilers and replace with low carbon alternatives where at all possible. This relates to Middlesex Street Estate, York Way Estate, Isleden House Estate and Frobisher Crescent (Barbican Estate).
- ❑ Where heating systems are installed, also install energy storage and smart controls to optimise use of low carbon heat.
- ❑ Review controls of communal heating systems at Middlesex Street Estate, York Way Estate and Isleden House Estate – all are consuming a large amount of gas per dwelling. For the same estates, review and improve insulation of distribution pipework. These measures should happen before fabric efficiency measures.
- ❑ Review controls of landlord lighting – internal and external. Are there lights on unnecessarily in daylight hours? Are there efficiencies that could be made to night time use? Priorities include the Barbican Estate and City of London and Gresham Almshouses.
- ❑ Replace inefficient lamps with LEDs.

### For 2040 target

- ❑ Develop detailed whole house retrofit plans for Holloway Estate, Sydenham Hill Estate and Windsor House as a priority (along with the other blocks indicated on page 67).
- ❑ Consider early replacement of gas boilers with individual Air Source Heat Pumps for Longland Court (Avondale Square Estate) and Markstone House (Southwark Estate). Low metered energy consumption indicates a level of efficiency sufficient for heat pumps without an uplift in running costs.
- ❑ Consider early replacement of gas boilers with direct electric heating system for Collinson Court (Southwark Estate) in tandem with roof insulation. Based on low metered energy consumption, and windows already being replaced, external wall insulation could be a secondary measure without an uplift in running costs.
- ❑ Great Arthur House – complete window replacement, add energy storage and smart controls and replace gas boilers with direct electric heating.
- ❑ Roll out energy efficient measures at the Avondale Square Estate and install direct electric heating in all blocks except Longland Court and Twelve Acres House.



## Next Steps, cont

### General

- ❑ Utilise action plans for each archetype to create long term retrofit action plans for each estate or block.
- ❑ Develop 'building logbooks' for each building in the first instance (with a view to each dwelling) that records what measures have been undertaken and when, and includes details of the long term retrofit plans.
- ❑ Improve metering strategy and labelling of meters across all estates.
- ❑ Carry out at least an annual analysis of energy use across all blocks and estates and compare trends.

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Monitor effectiveness of retrofit measures by noting date of installation and any changes in energy use.

Ensure no new build has gas communal heating.



# Glossary

**Air Source Heat Pumps (ASHP)** – an electric heating system that gathers ambient heat from surroundings to efficiently heat a dwelling.

**Air-tightness** – A measure of how much air naturally leaks out of or into a building, through gaps around doors, windows, keyholes etc. Usually measured in  $\text{m}^3/\text{m}^2/\text{hr}$  @ 50Pa.

**Building fabric** – a term used to describe collectively the walls, roof, floor, windows and doors of a building.

**Carbon budgets** – a term used to state remaining carbon emissions, or share of carbon emissions, that can be emitted before the amount of cumulative emissions exceeds that aligned with a given atmospheric temperature change.

**Carbon footprint** – the amount of carbon emitted by a person or organisation in a given timeframe.

**Carbon offsets** – a way of balancing emissions in one area by reducing emissions in another or by sequestration of carbon\*.

**Climate resilience** – enabling a building, dwelling, geographical area or organisation to adapt to the changing climate.

**CO<sub>2</sub>** – carbon dioxide, a greenhouse gas.

**Coefficient of Performance (CoP)** – a measure of efficiency usually used when describing heat pumps. The CoP is the amount of useful heat (or coolth) produces from every kilowatt of electricity used. E.g. a heat pump with a CoP of 3 produces 3 kW heat for every 1 kW of electricity it uses.

**CoL** - City of London Corporation

**Communal heating system** – a multi dwelling heating system.

**Energy efficiency** – the relative amount of energy a building or system uses to achieve a certain aim (e.g. maintain a specific internal temperature)

**Fabric Efficiency** – a measure of how effective a building's fabric is at retaining heat or staying cool.

**Greenhouse gas** – a gas that retains heat in the atmosphere, e.g. carbon dioxide (CO<sub>2</sub>).

**ktCO<sub>2</sub>** – kiloton of CO<sub>2</sub>, a measure of the amount of carbon dioxide emitted or offset.

**kWh** – kilowatt hour, a measure of the amount of energy used or generated in one hour.

**Leaky building** – A building with a low level of air-tightness.

**Mechanical Ventilation with Heat Recovery (MVHR)** – a form of building ventilation that recovers heat from stale air before it is vented outside the building and uses it to warm incoming fresh air.

**Net Zero Carbon** – where the amount greenhouse gases emitted by an organisation are equivalent to the emissions either: i) sequestered or offset , ii) displaced by production of renewable energy.

**Renewable energy** – energy from a renewable source e.g. wind or solar.

**Space heating demand (SHD)** – the amount of heat energy required to heat a space. SHD is a reflection of building fabric efficiency and is usually expressed in  $\text{kWh}/\text{m}^2/\text{yr}$ .

**Scope 1 emissions** - emissions from the direct combustion of fossil fuels (e.g. gas, petrol and diesel)

**Scope 2 emissions** - emissions from the production of electricity

**Scope 3 emissions** - emissions from activities or assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain e.g. purchased goods and services, business travel, commuting, waste, leased buildings (emissions from tenants or leaseholders fuel consumption) and financial investments.

**\*Sequestration** – the storing of carbon in land based assets.

**Solar photovoltaic (PV)** – a form of renewable electricity generation from solar energy well suited to buildings and urban environments.

**Waste Water Heat Recovery (WWHR)** – A proprietary system fitted to the outlets from sinks, showers and baths, which collects heat from the waste water and transfers it to the cold water feeding a hot water store.

**Whole House Retrofit** – where a building is retrofitted for energy efficiency in an holistic manner, and many different fabric elements and systems are considered at once.

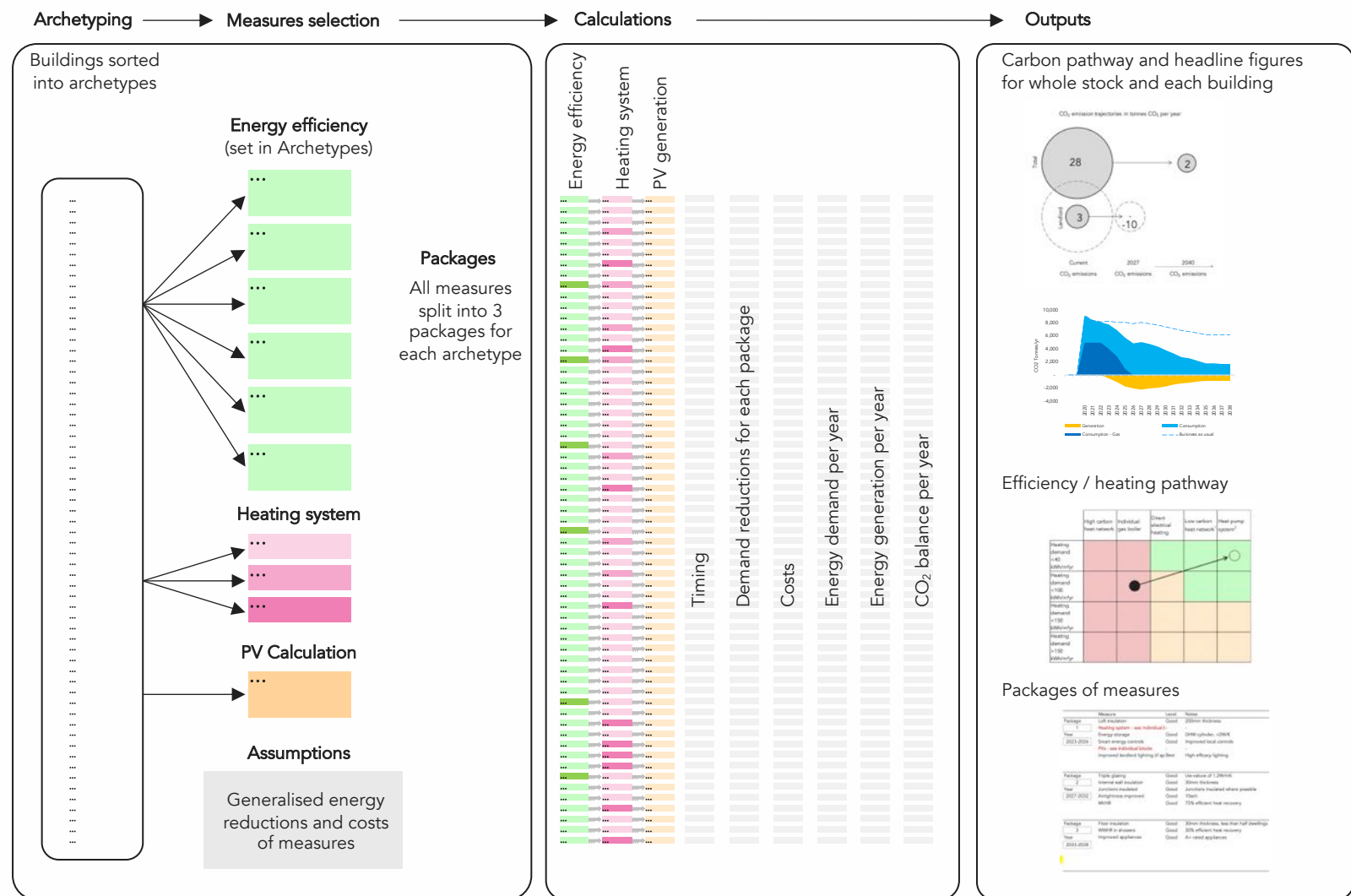


# Key assumptions

The diagram to the right, introduced the structure of the Net Zero Matrix, the tool we used to recommend measures for every building and estimate costs for the action plan.

The following pages explain more about how the results were calculated and the assumptions used to generate them. This includes information on the energy efficiency calculation structure, energy efficiency assumptions and cost assumptions.

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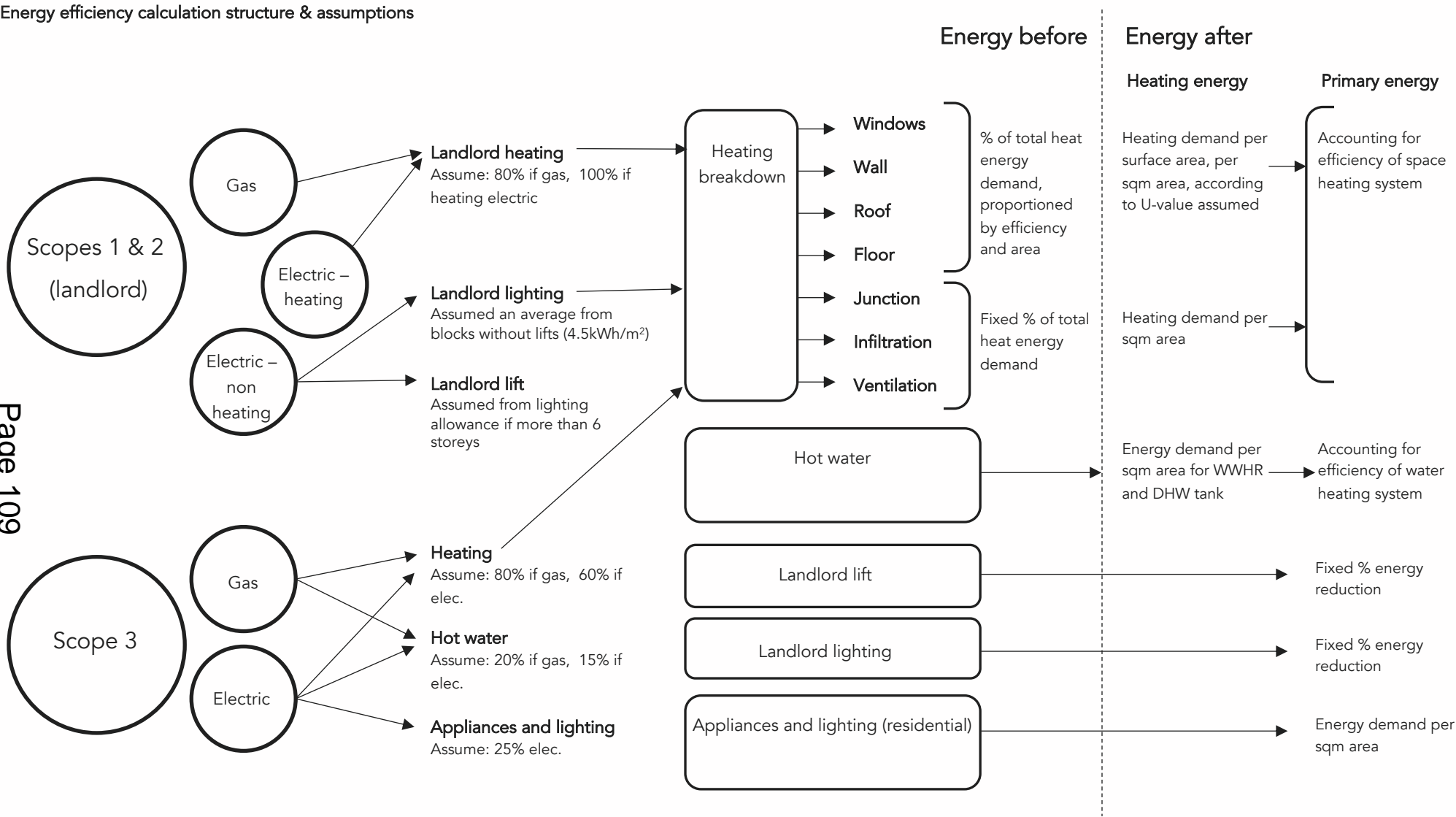


Net Zero Matrix structure (graphics reproduced at larger scale on following pages).



Key assumptions

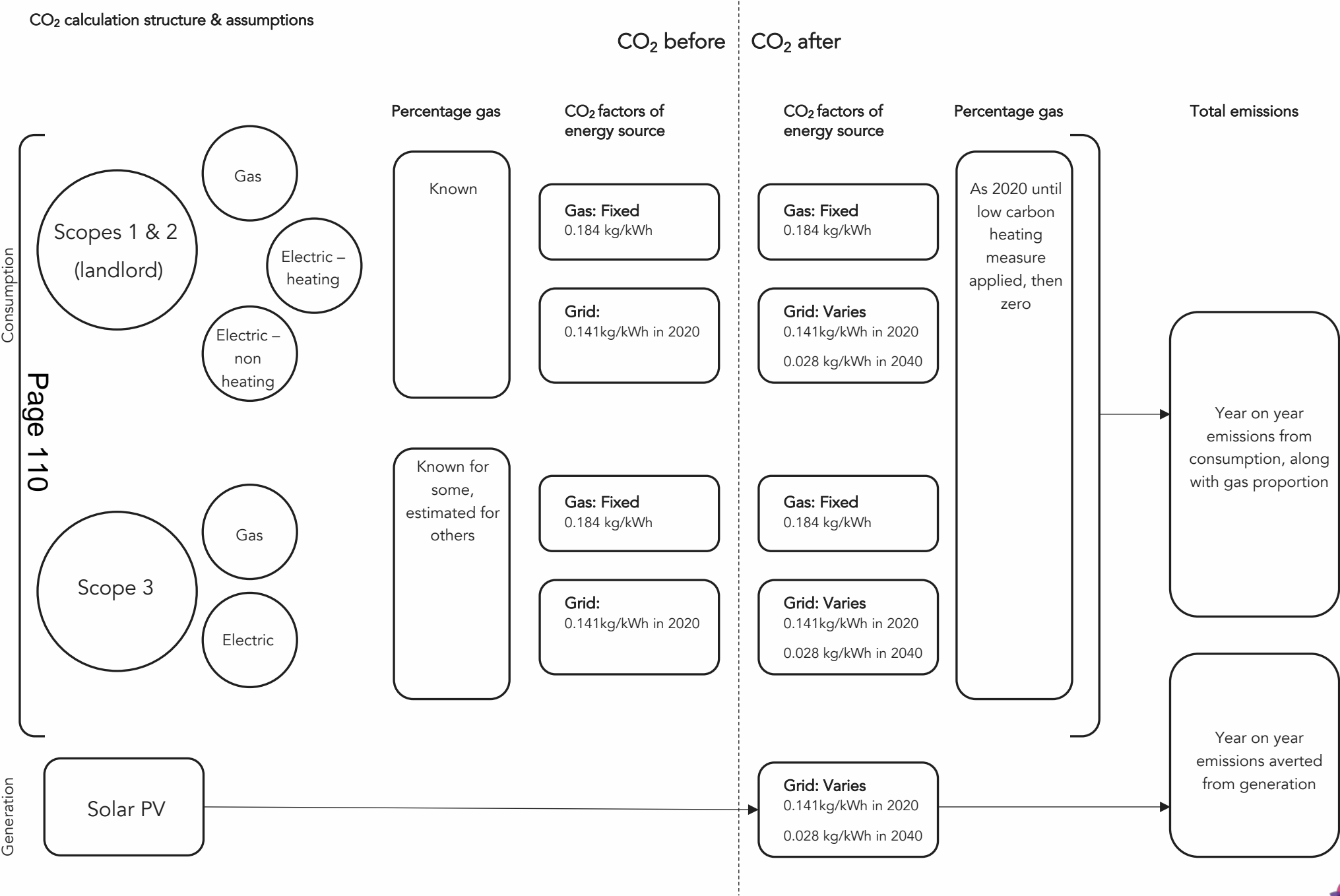
Energy efficiency calculation structure & assumptions





Key assumptions

CO<sub>2</sub> calculation structure & assumptions





# Key assumptions

Energy efficiency calculation detailed assumptions – This table gives the assumptions used to predict energy demand and generation

Energy use category	Energy use breakdown	Technology	Description			Before	After	
							Good	Best
				Good	Best	kWh/m <sup>2</sup> a/m <sup>2</sup> HLA, combined with % of current heating	kWh/m <sup>2</sup> a / m <sup>2</sup> HLA	
Space heating	Window glazing	Triple glazing	Uw-value of 1.2W/mK		Uw-value of 0.8W/m2K	0.047	0.029	0.022
	Wall insulation	Internal wall insulation	30mm thickness		100mm thickness	0.037	0.011	0.006
		External wall insulation	100mm thickness		200mm thickness	0.037	0.004	0.003
	Roof insulation	Flat roof insulation	100mm thickness		250mm thickness	0.037	0.004	0.003
	Floor insulation	Loft insulation	200mm thickness		400mm thickness	0.037	0.004	0.003
		Floor insulation	30mm thickness some dwellings		100mm thickness some dwellings	0.007	0.006	0.004
						% of current heat demand	kWh/m2a	
	Junctions	Junctions insulated	Junctions insulated where possible		Good connections possible	1.1%	6.3	4.2
	Airtightness	Airtightness improved	5ach		2ach	16.1%	28.8	11.6
	Ventilation	MVHR	75% efficient heat recovery		90% efficient heat recovery	11.0%	11.7	8.3
Hot water						% of energy demand		
	Hot water use	WWHR in showers	30% efficient heat recovery		50% efficient heat recovery	10.0%	11.5	9.0
	Hot water storage	DHW tank	DHW cylinder, <2W/K		DHW cylinder, <1W/K	10.0%	11.5	9.0
	Appliances, fans and pumps, lighting	Improved appliances	A+ rated appliances		A+++ rated appliances	12.5%	15.0	12.0
	Demand flexibility	Smart energy controls	Improved local controls		Whole dwelling controls with zoning	12.5%	15.0	12.0
Landlord electricity	Landlord lighting	Improved com. lighting (if appl.)	N/A		High efficacy lighting	1.0	0.8	0.6
	Landlord lift	Improved lift (if appl.)	N/A		High efficiency lift	1.0	0.8	0.6
Low carbon heat and no more fossil fuels		No change				SFP applied to heating energy		
		Individual HP	SFP of 2+		SFP of 3+	N/A	N/A	2.8
		Communal heat pumps	Using existing communal heat infrastructure			N/A	N/A	2.8
Renewable energy generation		Direct electric				N/A	N/A	0.0
		Solar PVs	360Wp panels with microinverters				Wp per panel	
						N/A	N/A	360Wp



# Key assumptions

## Cost calculation assumptions

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Energy use category	Energy use breakdown	Technology	Description		Good	Best
					</	



# Communal Heating – Barbican Estate

## Barbican Estate

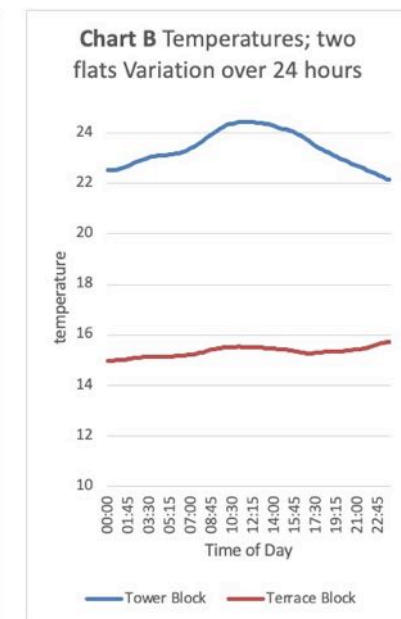
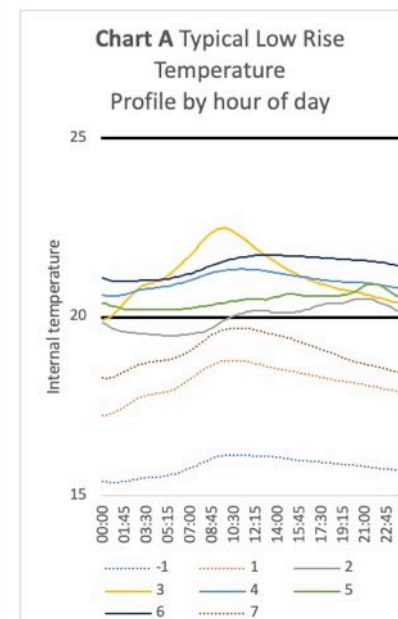
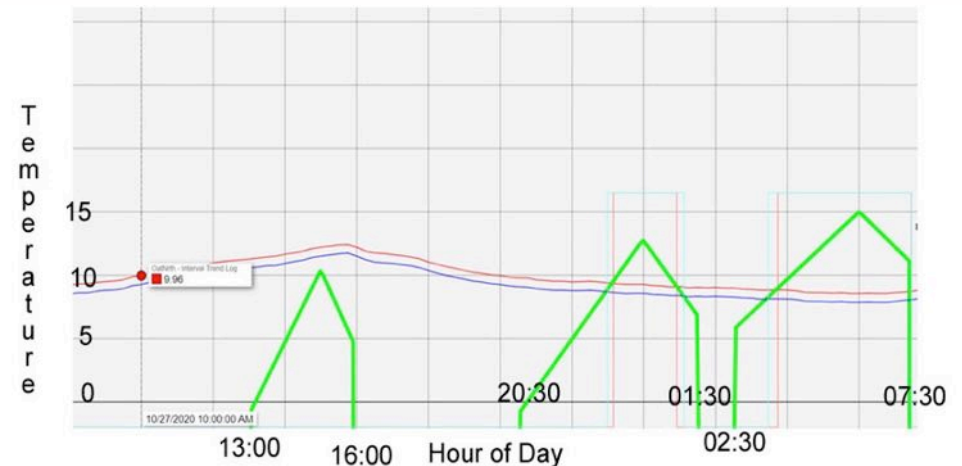
We understand from the experience of residents that the underfloor heating system may need optimising to ensure that electricity is used efficiently. Currently, many residents complain of too much heat in the winter (leading to open windows in mid-winter to cool flats), and not enough heat in shoulder seasons (spring and autumn). The residents have formed an Underfloor Heating Working Party which is looking in detail at how the controls can be optimised.

The issue is a complex one to solve. It's not entirely technical – there is also the problem of resident expectations and comfort and these vary greatly. A summary of conversations with the Underfloor Heating Working Party can be found in the Appendices, together with some recommendations.

The most pragmatic solution to improving the control over how much heat delivered to residents homes would be to deliver less heat through the communal heating system (and charge residents less) and install electric radiators in each unit that residents have easy, individual control over. However, an appropriate charging mechanism would need to be established. This could be through the Corporation itself – either a fixed charge (although this does not incentivise efficient behaviours) or through metering of electrical supplies to each unit. Alternatively, residents could have full control and pay bills to the utility companies themselves, although they would not benefit from the beneficial tariff the Corporation is understood to have secured.

## Barbican underfloor heating system description

Barbican resident Ted Reilly has put together a very useful summary of the underfloor heating system at the Barbican Estate. Anyone wishing to understand this document better is encouraged to refer to this document entitled "Barbican Underfloor Heating System Description".



Extracts from "Barbican Underfloor Heating System Description" document provided by Ted Riley, Barbican resident.



## Resident engagement

See following pages for:

- Barbican workshop 1
- HRA Estates workshop 1a
- HRA Estates workshop 1b
- Survey responses



<b>Project</b>	City of London Corporation - Housing Net Zero Action Plan					
<b>Workshop</b>	Barbican Residents Workshop 1 - Understanding the buildings through the residents eyes.					
<b>Date</b>	5th May 2021					
<b>Time</b>	19:00 – 20:30					
<b>Venue</b>	Online through Zoom					
<b>Attendees</b>	Barbican residents - 15					
	Etude (Anna MacKenzie, Thomas Lefevre, Kate Millen, Naomi Grint)					
	Corporation of London (Graeme Low, Julia Makin, Lochlan MacDonald)					
<b>Duration</b>	90 mins					
<b>Purpose</b>	To understand the buildings through residents eyes.					
<b>Roles</b>	Facilitator - Anna Presenter – Kate Break out room chairs – Thomas, Kate, Naomi					
Stage	Duration, mi	Time	Objective	Activity	Who	Resources
1. Arrival	5	19:00	Time to arrive	- People arrive and settle	Anna	
2. Introduction	5	19:05	Intros	- Introduce the team (we are not CoL) - Introduce the purpose of the workshop - Establish ground rules - Present the agenda	Anna	
2. Scene setting	10	19:10	Set the scene  Participants understand what the end-goal is for the building they live in.	- Who we are, what are we for (we are not CoL). - What we are doing – introduce the study - Why we are doing it - e.g. Climate Action Strategy. - What we want to achieve - what is net zero? - Describe the long term vision - Elaborate explaining the intermediate steps we need to get there.	Kate	Slides
4. Results of questionnaire	5	19:20			Anna	Slides
5. Group discussion	30	19:25	Residents share insights and ideas for improving the heating system.	- 30 mins: 3x Breakout rooms. Topic – Heating systems, energy efficiency, ventilation, controls. (discuss people's experiences and ideas for improvements)	Anna facilitate Kate, Naomi, Thomas chair breakout rooms	Note taking spreadsheet
6. Group feedback	20	19:55		- 5 mins each: Return together to share thoughts – 1 volunteer from residents to report back and check our understanding with the attendees (5 mins each).	Anna facilitate Kate, Naomi, Thomas present back	Note taking spreadsheet
7. Polls	5	20:15		- Priorities - what's the most important to deal with? -	Anna	Questions in chat Poll
8. Conclusion and next steps	5	20:20		- What we will do with the results - Next workshop	Anna	



9. AOB	5	20:25	Opportunity to ask questions and voice any other views		Anna	
Total	90					
NOTES						
Heating, Energy Efficiency, Ventilation						
Breakout room 1	cmd+ Enter for new line in cell					
Group 1 - permeability. Drafts - lack of control (too hot at night). Single and double glazing - mainly on road facing flats. Reverse fan light single glazing. Moisture in the air - down to 25% in some flats. People accept the background heating and dress accordingly, oil heaters commonly used. Colin and Sally - system is on the whole time - water tank is cycling constantly (hot water). Barbican - hot water can be turned off - immersion. West facing - can get very hot. Some residents have used films to reduce gain.						
Breakout room 2	cmd+ Enter for new line in cell					
Group 2 - Communal gas heating in Frobisher Crescent - review recent report. Interested in hearing ideas for changing heating system. Energy efficiency - opportunities around glazing, but it might be sufficient already. Heating system controls seem to be the thing to address - reducing energy wastage. Cost point - must not be a vanity project. Develop a climate change strategy for Barbican as exemplar.						
Breakout room 3	cmd+ Enter for new line in cell					
Group 3 - Overheating in both summer and winter. Dry air. Some residents can control summer overheating through blinds and ventilation. Orientation must be considered. Controls a big issue. How do adjacent flats impact other flats in terms of heating. Glazing - cost, how it works with climate change and overheating in the winter. Needs to be joined up.						
Glazing replacement.						
Case by case basis - can						
Modern building, stuck with cold bridges						
Focus on what's unique here						
Join up opportunities - recent study on changing pattern on transport. Vacant parking spaces for PV?						
Can deals be made with suppliers?						
Load patterns are unique. Surrounded by huge cooling loads neighbours.						
Wrap PV around barrel roofs.						
Can we utilise neighbouring solutions?						



What about non-domestic properties?					
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<b>Project</b>	City of London Corporation - Housing Net Zero Action Plan					
<b>Workshop</b>	HRA Residents Workshop 1 - Understanding the buildings through the residents eyes.					
<b>Date</b>	Thu 6th May 2021					
<b>Time</b>	19:00 – 20:30					
<b>Venue</b>	Online through Zoom					
<b>Attendees</b>	HRA residents - 2.					
	Etude (Anna MacKenzie, Thomas Lefevre, Kate Millen, Naomi Grint)					
	Corporation of London (tbc)					
<b>Duration</b>	90 mins					
<b>Purpose</b>	To understand the buildings through residents eyes.					
<b>Roles</b>	Facilitator - Anna Presenter – Kate Break out room chairs – Thomas, Kate, Naomi					
<b>Stage</b>	<b>Duration, mi</b>	<b>Time</b>	<b>Objective</b>	<b>Activity</b>	<b>Who</b>	<b>Resources</b>
1. Arrival	5	19:00	Time to arrive	- People arrive and settle	Anna	
2. Introduction	5	19:05	Intros	- Introduce the team (we are not CoL) - Introduce the purpose of the workshop - Establish ground rules - Present the agenda	Anna	
3. Who are the participants?	2	19:10		- Poll to see where people are from.	Anna	
2. Scene setting	10	19:12	Set the scene  Participants understand what the end-goal is for the building they live in.	- Who we are, what are we for (we are not CoL). - What we are doing – introduce the study - Why we are doing it - e.g. Climate Action Strategy. - What we want to achieve - what is net zero? - Describe the long term vision - Elaborate explaining the intermediate steps we need to get there.	Kate	Slides
4. Results of questionnaire	3	19:22			Anna	Slides
5. Group discussion	30	19:25	Residents share insights and ideas for improving the heating system.	- 30 mins: 3x Breakout rooms. Topic – Heating systems, energy efficiency, ventilation, controls. (discuss people's experiences and ideas for improvements)	Anna facilitate Kate, Naomi, Thomas chair breakout rooms	Note taking spreadsheet
6. Group feedback	20	19:55		- 5 mins each: Return together to share thoughts – 1 volunteer from residents to report back and check our understanding with the attendees (5 mins each).	Anna facilitate Kate, Naomi, Thomas present back	Note taking spreadsheet
7. Polls	5	20:15		- Priorities - what's the most important to deal with? -	Anna	Questions in chat Poll
8. Conclusion and next steps	5	20:20		- What we will do with the results - Next workshop	Anna	



9. AOB	5	20:25	Opportunity to ask questions and voice any other views		Anna	
Total	90					
<b>NOTES</b>						
<p>Will - hardly uses any heating. Doesn't need it. South facing on living room and bedroom side. Gas central heating doesn't come on at all. Electric shower. Uses a combi boiler to do the washing up. Uses an electric fire.</p> <p>Windows are solid. Trickle vents on the windows. Can shut all but the bathroom, but then the air gets stale. Likes the way the street looks on the outside - would external insulation be ok or worthwhile? Might need to go a long way to get big improvements in energy efficiency. There are both tenants and leaseholders. Would need to consider the options re signing up to a communal system vs staying independent. Doesn't know where a big heat pump system would go. There is an airing cupboard type space.</p> <p>There's a deep boxed out riser space in the bathroom. Some people have taken this out.</p> <p>An old coal store.</p> <p>If we were going to do a lot of retrofit, a way to help overheating would be to install balconies outside full doors, to give shading (they face south-s-w) - decl access on north/north east (kitchen and bathrooms). Bedrooms and living rooms face south. Would be interesting to know how it works - some upgrades would be communal.</p>						
<p>Hannah - Gas combi boiler is used most days. Heard that top floor gets colder. Interested in getting a heat pump to move away from gas. The block used to have Is there a weak point in energy efficiency? - draft comes in around the front door. Big windows at the back.</p> <p>Flat room. Pram shed and garages next door.</p> <p>There has been a benefit in the window replacements.</p> <p>Ventilation in the kitchen - open the windows.</p> <p>Problems with condensation - yes on the 5th floor, lots of black mold. But no problem on 4th floor. On the same side of the building.</p> <p>Would there preference be direct electric + fabric improvements or heat pump ? - Upfront costs, running costs and disruption are all considerations.</p> <p>If there are benefits, then increased running costs may be acceptable. Need to be clear about the positives in the package. How will people feel if they are paying?</p>						
<p>Would definitely be in favour of a green makeover. Petrol mowers and leaf blowers! Has been involved in community building and engagement - managing a garden patch by the garages. Communications can be frustrating. Golden Lane - lots of community building stuff. Really need to support community building so that they feel they are part of something.</p>						



<b>Project</b>	City of London Corporation - Housing Net Zero Action Plan					
<b>Workshop</b>	HRA Residents Workshop 1 - Understanding the buildings through the residents eyes.					
<b>Date</b>	Wed 12th May 2021					
<b>Time</b>	19:00 – 20:30					
<b>Venue</b>	Online through Zoom					
<b>Attendees</b>	HRA residents					
	Etude (Anna MacKenzie, Thomas Lefevre, Kate Millen, Naomi Grint)					
	Corporation of London (tbc)					
<b>Duration</b>	90 mins					
<b>Purpose</b>	To understand the buildings through residents eyes.					
<b>Roles</b>	Facilitator - Anna Presenter – Naomi Break out room chairs – Thomas + Anna (GL) - Kate + Naomi (Others)					
Stage	Duration, mi	Time	Objective	Activity	Who	Resources
1. Arrival	5	19:00	Time to arrive	- People arrive and settle	Anna	
2. Introduction	5	19:05	Intros	- Introduce the team (we are not CoL) - Introduce the purpose of the workshop - Establish ground rules - Present the agenda	Anna	
3. Who are the participants?	2	19:10		- Poll to see where people are from.	Anna	
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4. Results of questionnaire	3	19:22			Anna	Slides
5. Group discussion	30	19:25	Residents share insights and ideas for improving the heating system.	- 30 mins: 3x Breakout rooms. Topic – Heating systems, energy efficiency, ventilation, controls. (discuss people's experiences and ideas for improvements)	Anna facilitate Kate, Naomi, Thomas chair breakout rooms	Note taking spreadsheet
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7. Polls	10	20:05		- Priorities - what's the most important to deal with? -	Anna	Questions in chat Poll
8. Conclusion and next steps	5	20:15		- What we will do with the results - Next workshop	Anna	



9. AOB	5	20:20	Opportunity to ask questions and voice any other views		Anna	
Total	85					
NOTES						
Heating, Energy Efficiency, Ventilation						
Breakout room 1 - Golden Lane Estate		cmd+ Enter for new line in cell				
<p>Dawn - windows. Hands are still cold and the hands are still cold. 75mm of foam glass is on the roofs. There are little windows around the top. There are undercrofts on some flats, and that room is freezing in the winter. Uninsulated concrete slab. Alternate floors, there are timber floors. Projecting bays have some damp - cold bridges. Walkways to enter the front door. Ventilation - current ventilation is through the windows (there are holes at the bottom of the windows to let the condensations out. No ventilation fans in the bathrooms. Half the flats haven't had their roofs repaired/replaced for some time. Water is still coming in. A lot of the damp is from water ingress through the roof. End maisonette - uninsulated. Doors - they are solid but they leak air all the way around. Letter boxes are drafty too. Curtains in the large room are difficult to put in. Sue tried to get a smart meter, but they couldn't install one / they don't connect. Difficult for people to monitor their energy usage. Some blocks do have smart meters. 8.5m2 of single glazing. Two Basterfield properties - comparison of energy efficiency. Panel system walls on the south side of the blocks. On the north side, upper storey is panels. Under that think kinker block - insulation outside would eb difficult due to walkway. Kitchens very narrow.</p> <p>Heating - brand new combi boilers have just been put in. Boiler is coming on and off all day. Leaseholders individually fit their own. Sue has some electric underfloor heating she put in herself. Some boiler flues go out of windows. Shouldn't have to justify individual circumstances.</p> <p>Communal heating system being proposed for Cuthbert Harrowing and Crescent House. Look at Options Appraisal. Pipe routes - are they still there? It was more or less a steam system insulated with asbestos. Maybe use existing ducts but need to check asbestos.</p>						
Breakout room 2		cmd+ Enter for new line in cell				







Please select the estate in which you live.	Please select the block in which you live.	How many bedrooms does your home have?	Which of the below best describes your home?	Which best describes your house?	Which floor are you on?	What's the main heating source in your home?	Communal system	Combi gas boiler	Immersion heater	Point-of-use heater (e.g. electric shower, hot tap etc)	Thermostat	Additional plug-in electric heaters	Additional gas heaters	Open windows when it's too warm in the winter	No control	Other	You selected "other". Please briefly describe other ways in which you control the temperature of your home.	How comfortable is your home in the winter?	How comfortable is your home in the summer?	Does your home suffer from damp?	Do you use your kitchen and bathroom ventilation?	Could you tell us why you don't use all or some of your ventilation fans?	Do you have broadband and wifi?	Would you be willing to share your energy bill data with us (anonymously)?	If you would like to use this space to add anything else you would like to say.
Avondale Square Estate	Brettinghurst House	1-bed	Flat		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat							3	5	No	Yes - bathroom only	Don't have ventilation in kitchen just open the windows	Yes	Maybe	The windows are old. The rubber thing that put around it does nothing. Mould builds up on my windows weekly. There is a breeze even when closed. There is a breeze coming from the front door. They was charging me £30 per month for gas in a studio flat.
Avondale Square Estate	East Point	Studio	Flat		Top floor	Own gas boiler		Combi gas boiler							No control			1	8	Yes - a lot	Yes - bathroom only	Only have it in the bathroom	Yes	No	In my flat I have single glass old windows. In the winter it is very cold and we have paddles of water on the floor each morning. During windy weather the curtains fly, how bad those windows are! It is time to do something about it. We use a lot of gas to heat the flat and it is still too cold, not to mention the noise level.
Avondale Square Estate	George Eliot House	3-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							1	8	Yes - a little	Yes - kitchen only	I don't have one in the bathroom and toilet	Yes	No	
Avondale Square Estate	Longland Court	3-bed	Flat		Middle floor	Own gas boiler				Point-of-use heater	Thermostat							3	8	Yes - a little	Yes - both		Yes	No	
Avondale Square Estate	Proctor House	Studio	Flat		Ground/Lowest floor	Electric storage heater			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				0	5	Yes - a little	No - we turn it off	I presume they were fitted when the recent works were done but I don't exactly know if I have them and I certainly don't know how to use them.	Yes	Yes	I have had some mould in cupboards. In the past I have had a lot of trouble with water leaks from above. A few years ago the bathroom had to be replastered (I think is the word) and redecorated once it had dried out. I tend to worry that it might happen again.
Avondale Square Estate	Tovry House	2-bed	Flat		Top floor	Own gas boiler		Combi gas boiler			Thermostat							1	8	Yes - a lot	Yes - both		Yes	No	The windows and front doors need replacing in forty houses. In the winter the condensation is so bad I have to put towel along the window seal to soak up the water. The front doors have big gaps that let through alot of draught and we lose alot of our heat when the heating is on.
Avondale Square Estate	Tovry House	2-bed	Flat		Top floor	Own gas boiler		Combi gas boiler			Thermostat							2	8	Yes - a lot	Yes - both		Yes	No	The windows in my flat are rubbish they let to much draft and cold in and the front doors are not energy efficient. Double glazed windows and fire doors are required. These need to be updated.
Avondale Square Estate	Tovry House	2-bed	Flat		Ground/Lowest floor	Own gas boiler		Combi gas boiler							No control			2	7	No	Yes - bathroom only	No ventilation on the kitchen. On the bathroom we open the window after every bath as there is not ventilation.	Broadband	Yes	I think Col. can do much more than just providing few recycling bins to help the environment. Normally recycling bins gets full by the end of the week and because the collection only happens about every fortnight, residents used other waste bins for recycling materials too.
Barbican Estate	Andrewes House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			3	5	No	Yes - both		Yes	Maybe	Residents should be made aware that stuck-open vents can be replaced and offered advice about draught-proofing. Both would help reduce unnecessary use of energy. Also, not everyone knows that underfloor heating 'timers' can be adjusted to provide more or less heat.
Barbican Estate	Andrewes House	2-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			5	5	No	Yes - both		Yes	Yes	I have put both my email addresses in: Maryduncan@hotmail.com Mary.duncan@cityoflondon.gov.U.K. I would be interested in attending both workshops
Barbican Estate	Andrewes House	2-bed	Flat		Ground/Lowest floor	Electric underfloor heating			Immersion						No control			5	5	No	Yes - both		Yes	Maybe	
Barbican Estate	Andrewes House	2-bed	Flat		Middle floor	Electric underfloor heating			Immersion					Open windows when it's too warm in the winter				7	5	No	Yes - both		Yes	Yes	xxxx
Barbican Estate	Andrewes House	1-bed	Flat		Ground/Lowest floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters			No control			3	5	No	Yes - both		Yes	Yes	
Barbican Estate	Ben Johnson House	1-bed	Maisonette		Middle floor	Communal heating			Immersion	Point-of-use heater		Additional plug-in electric heaters		Open windows when it's too warm in the winter	No control			4	8	No	Yes - both		Yes	No	When the new communal heating system was installed, why was it set to run in the same manner as before? Surely there are ways to make the communal heating more climate and user friendly? My heating bill in my 714 sq ft flat is more than a friend's 1023 sq ft flat in a block in Clerkenwell. Outrageous overcharge!
Barbican Estate	Brandon Mews	1-bed	House	Mid terrace		Electric underfloor heating			Immersion					Open windows when it's too warm in the winter	No control			7	8		Yes - both		Yes	No	Cannot select both workshops.
Barbican Estate	Bretton House	Studio	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter											
Barbican Estate	Bretton House	Studio	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				1	8	No	Yes - bathroom only	Concerns over fire hazards.	Yes	Yes	Although ours is a middle floor flat, three of its external walls are exposed including to the northern boundary of the Blackfriars Estate.
Barbican Estate	Bunyan Court	1-bed	Flat		Middle floor	Electric underfloor heating				Point-of-use heater				Open windows when it's too warm in the winter				6	9	No	Yes - both		Yes	Maybe	
Barbican Estate	Bunyan Court	2-bed	Maisonette		Top floor	Electric underfloor heating	Communal system					Additional plug-in electric heaters		Open windows when it's too warm in the winter	No control			5	7	No	Yes - both		Yes	Yes	
Barbican Estate	Cromwell Tower	4-bed	Flat		Middle floor	Electric storage heater	Communal system					Additional plug-in electric heaters		Open windows when it's too warm in the winter	No control			3	6	No	Yes - both		Yes	Yes	
Barbican Estate	Cromwell Tower	3-bed	Flat		Middle floor	Electric underfloor heating	Communal system			Point-of-use heater					No control			3	5	No	No - we turn it off	We open the window in the kitchen. There's no ventilation in the bathroom.	Yes	Maybe	Barbican Estate needs to find ways to insulate.
Barbican Estate	Cromwell Tower	3-bed	Flat		Middle floor	Communal heating			Immersion						No control			10	7	No	Yes - both		Yes	Yes	The Barbican communal heating system is grossly inefficient and renders many homes uncomfortable. At present I have to leave outside doors open across my flat day and night because otherwise it is much too hot. This is a terrible waste of energy.
Barbican Estate	Defoe House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter		Other	I use full length white reflective roller blinds to block out the sun on hot days and help keep the interior of the flat cool	3	5	No	Yes - both		Yes	Yes	I would be very interested if there was a way for a large group of residents to work together with Col. to upgrade the original barbian windows to make them much warmer and more energy efficient. I would be interested also to know if the barrel vault roof tops of the terrace blocks in the barbian could be fitted with solar panels, as I understand there are flexible curved ones now that could perhaps be used without affecting the listed building profile. Also could ground source heat pumps be installed under the residents' gardens?



Please select the estate in which you live.	Please select the block in which you live.	How many bedrooms does your home have?	Which of the below best describes your home?	Which best describes your house	Which floor are you on?	What's the main heating source in your home?	Communal system	Combi gas boiler	Immersion heater	Point-of-use heater (e.g. electric shower, hot tap etc)	Thermostat	Additional plug-in electric heaters	Additional gas heaters	Open windows when it's too warm in the winter	No control	Other	You selected "other". Please briefly describe other ways in which you control the temperature of your home.	How comfortable is your home in the winter?	How comfortable is your home in the summer?	Does your home suffer from damp?	Do you use your kitchen and bathroom ventilation?	Could you tell us why you don't use all or some of your ventilation fans?	Do you have broadband and wifi?	Would you be willing to share your energy bill data with us (anonymously)?	Use this space to add anything else you would like to say.		
Barbican Estate	Defoe House	1-bed	Flat		Top floor	Electric underfloor heating			Immersion						No control				4	6	No	Yes - kitchen only	There's a passive vent in the bathroom that doesn't work well. There's no other option	Yes	Yes	It's only too warm for a few days in the summer. In future we may need air conditioning on the hottest days.	
Barbican Estate	Defoe House	2-bed	Flat		Middle floor	Communal heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				5	5	No	Yes - both			Yes	Yes		
Barbican Estate	Defoe House	2-bed	Flat		Middle floor	Communal heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				6	6	No	Yes - both			Yes	No		
Barbican Estate	Frøbisher Crescent	3-bed	Flat		Middle floor	Communal heating	Communal system				Thermostat								6	6	No	Yes - both			Yes	Yes	
Barbican Estate	Frøbisher Crescent	Studio	Flat		Middle floor	Communal heating			Immersion		Thermostat								5	6	No	Yes - both			Yes	Maybe	Yes I would like to attend both workshops
Barbican Estate	Frøbisher Crescent	3-bed	Flat		Middle floor	Communal heating	Communal system				Thermostat	Additional plug-in electric heaters							5	5	No	Yes - both			Yes	No	
Barbican Estate	Gilbert House	3-bed	Flat		Top floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				10	8	No	Yes - bathroom only	With all fans on the flat humidity is too low all the time. In winter it is often below 25% even with the kitchen extractor off. The open plan flat design means using a humidifier is not feasible. Also the air turnover is high & bringing more pollution into the flat.	Yes	Yes	Solar gain through the windows is a big problem in our flat during hot weather or when the winter underfloor heating is excessive. However, solar gain is very useful during cold weather in Spring, Autumn & Summer when there is no or inadequate communal heating. Outdoor shades would perhaps be the most effective. The underfloor heating is much too hot when the nights are cold & the days are relatively warm. It would be good to regulate the heating taking the next day's weather forecast into account. The lever operated window vent in the 7th floor domed bedroom is so high up it needs a ladder to reach it. This is obviously impractical. Bathroom heaters are very expensive to run as we have been told they must be run at 60 degrees because of Legionella.		
Barbican Estate	Gilbert House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion	Point-of-use heater					No control				7	7	No	Yes - both			Yes	Yes	OK
Barbican Estate	Gilbert House	2-bed	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				8	6	No	Yes - both			Yes	Yes	I would be happy to pay more to have the electricity used for our communal underfloor heating be from renewable resources.	
Barbican Estate	Hilton House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion					Open windows when it's too warm in the winter	No control			3	7	No	Yes - both			Yes	Maybe	I find the underfloor heating in the Barbican too hot overnight and too cold during the day (particularly by mid afternoon)	
Barbican Estate	Lauderdale Tower	3-bed	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter	No control			3	8	Yes - a little	Yes - both			Yes	Maybe	There isn't a next button, people have to know to click the arrow next to the typeform blue bar	
Barbican Estate	Pellicot Tower	3-bed	Flat		Middle floor	Communal heating	Communal system		Immersion		Thermostat								7	7	No	Yes - both			Yes	Yes	nothing at this stage
Barbican Estate	Seddon House	1-bed	Flat		Ground/Lowest floor	Communal heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				4	5	No	Yes - both			Yes	Yes	The estate must look at energy loss. All the heat is lost through old glazing. This should be replaced to improve efficiency and comfort. Long term solutions not short term decisions.	
Barbican Estate	Seddon House	3-bed	Flat		Top floor	Electric underfloor heating			Immersion						No control			3	7	No	Yes - both			Yes	Yes		
Barbican Estate	Seddon House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				7	10	No	Yes - both			Yes	Yes		
Barbican Estate	Seddon House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			5	5	Yes - a little	No - we turn it off	There are none	Broadband	No	Some of the questions clearly did not understand the estate.		
Barbican Estate	Seddon House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			4	6	No	Yes - kitchen only	Because moths come into my flat via the ventilation system.	Yes	Yes	Many of the questions are ones which the Corporation as landlord will know the answers to already.		
Barbican Estate	Shakespeare Tower	3-bed	Flat		Middle floor	Electric underfloor heating	Communal system		Point-of-use heater					Open windows when it's too warm in the winter				5	5	No	Yes - both			Yes	Yes		
Barbican Estate	Shakespeare Tower	3-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			5	5	No	Yes - both			Yes	Maybe		
Barbican Estate	Shakespeare Tower	3-bed	Flat		Middle floor	Electric underfloor heating			Immersion					Open windows when it's too warm in the winter				8	7	No	Yes - both			Yes	Yes		
Barbican Estate	Shakespeare Tower	2-bed	Flat		Middle floor	Electric underfloor heating			Immersion					Open windows when it's too warm in the winter	No control	Other	Underfloor heating trimmer	5	5	No	Yes - both			Yes	Yes		
Barbican Estate	Shakespeare Tower	3-bed	Flat		Top floor	Electric underfloor heating			Immersion						No control			5	6	No	Yes - both			Yes	Maybe		
Barbican Estate	Shakespeare Tower	2-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			5	8	No	Yes - both			Yes	Maybe		
Barbican Estate	Speed House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion					Open windows when it's too warm in the winter				9	5	No	Yes - both			Yes	No		
Barbican Estate	Speed House	2-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			5	7	No	Yes - both			Yes	Maybe	How about some solar heating for a start?	
Barbican Estate	Thomas More House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion						No control			7	8	No	Yes - both			Yes	Yes		
Barbican Estate	Thomas More House	Studio	Flat		Ground/Lowest floor	Electric underfloor heating			Immersion					Open windows when it's too warm in the winter	No control			6	4	No	Yes - kitchen only	bathroom fan on all the time. Kitchen hob fan used for cooking on boost	Yes	Yes			



Please select the estate in which you live.	Please select the block in which you live.	How many bedrooms does your home have?	Which of the below best describes your home?	Which best describes your house?	Which floor are you on?	What's the main heating source in your home?	Communal system	Combi gas boiler	Immersion heater	Point-of-use heater (e.g. electric shower, hot tap etc)	Thermostat	Additional plug-in electric heaters	Additional gas heaters	Open windows when it's too warm in the winter	No control	Other	You selected "other". Please briefly describe other ways in which you control the temperature of your home.	How comfortable is your home in the winter?	How comfortable is your home in the summer?	Does your home suffer from damp?	Do you use your kitchen and bathroom ventilation?	Could you tell us why you don't use all or some of your ventilation fans?	Do you have broadband and wi-fi?	Would you be willing to share your energy bill data with us (anonymously)?	If you would like to use this space to add anything else you would like to say.
Barbican Estate	Thomas More House	2-bed	Flat		Ground/Lowest floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				2	5	No	Yes - both		Yes	Maybe	The Barbican needs special analysis due to the block structure and centrally controlled underfloor heating.
Barbican Estate	Thomas More House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter				5	5	No	Yes - both		Yes	No	
Barbican Estate	Walside	4-bed	House	Mid terrace		Electric underfloor heating			Immersion			Additional plug-in electric heaters		Open windows when it's too warm in the winter		Other	The house had its own timer which can turn the temperature of heating provided to the house up or down. Also I replaced the underfloor heating fuse board with permission from the BEO and can pull out fuses to turn the heating off if necessary. However there is no incentive to do so because the heating charges are charged by block, and not by the usage of the individual house.	3	3	No	Yes - both		Yes	No	I cannot attend the times of either workshop but you did not give an option for me to select that said that so I had not other choice but to select that I did not wish to attend. That is not correct. The Corporation has a responsibility to ensure that meetings and workshops are offered at different times of the day and not all in the evening to ensure they give everyone the opportunity to attend. This you have not done.  Q11 and Q12 miss the point somewhat. Because there is no control and the heating is other on or off when it is very cold it is too cold and when the weather is very hot it is too hot. Both can happen in the summer and in the winter. Also because there is a lag when the heating kicks in if a very cold day is followed by a very hot day the heating will be full on and the windows have to be opened. Conversely if a hot day is followed by a cold day no heating will be generated and it will be freezing.
Cat, Almshouses	39-44	1-bed	House	Mid terrace		Own gas boiler		Combi gas boiler			Thermostat							0	10	Yes - a lot	Yes - both		Yes	Yes	nothing else to say
Dron House	Dron House	1-bed	Flat		Top floor	Own gas boiler		Combi gas boiler			Thermostat							4	3	No	Yes - both		No internet	No	We have far too much ventilation, compared with modern standards and bulbs. This does have advantages re carbon monoxide + damp BUT it does cost more to heat flats ...
Golden Lane Estate	Basterfield House	3-bed	Maisonette		Top floor	Own gas boiler		Combi gas boiler	Immersion		Thermostat							5	6	Yes - a lot	Yes - both		Yes	Maybe	Does HRA ESTATE residents include Leaseholders.
Golden Lane Estate	Basterfield House	2-bed	Maisonette		Top floor	Own gas boiler		Combi gas boiler			Thermostat							1	9	No	No - we turn it off	There are none!	Yes	Yes	
Golden Lane Estate	Basterfield House	2-bed	Maisonette		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat			Open windows when it's too warm in the winter				8	6	Yes - a little	Yes - both		Yes	Yes	
Golden Lane Estate	Bayer House	2-bed	Maisonette		Middle floor	Electric underfloor heating		Combi gas boiler			Thermostat							3	6	No	Yes - both		Yes	Maybe	
Golden Lane Estate	Brewster House	2-bed	Maisonette		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							3	8	Yes - a little	Yes - both		Yes	Yes	Our flats leak heat and gas is becoming very expensive
Golden Lane Estate	Callum Welch House	4-bed	House	Detached		Electric underfloor heating			Immersion						No control			1	2	No	Yes - bathroom only	acids	Yes	Yes	
Golden Lane Estate	Crescent House	Studio	Flat		Top floor	Own gas boiler		Combi gas boiler			Thermostat			Open windows when it's too warm in the winter				4	8	Yes - a little	Yes - both		Yes	No	We have internally insulated the walls and ceilings in half of our flat and this has helped control the damp in those areas but the relative humidity in winter can be around 70%. We use a dehumidifier to get it down to around 60% and this extracts about 2-3 litres/day. We can't keep windows open as we face Goswell Road so there is high noise and pollution levels.
Golden Lane Estate	Crescent House	2-bed	Flat		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat							0	4	Yes - a lot	Yes - both		Yes	Yes	We need windows from the flat changed in order to save on energy bills
Golden Lane Estate	Crescent House	1-bed	Flat		Top floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters		Open windows when it's too warm in the winter				7	5	Yes - a little	Yes - both		Yes	Maybe	
Golden Lane Estate	Crescent House	Studio	Flat		Middle floor	Own gas boiler			Immersion									3	6	Yes - a lot	Yes - both		No internet	Yes	The primary issue with crescent house is the lack of double glazing.
Golden Lane Estate	Cuthbert Harrowing House	3-bed	Maisonette		Top floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters						1	2	Yes - a little	Yes - both		Yes	Maybe	
Golden Lane Estate	Cuthbert Harrowing House	2-bed	Flat		Top floor	Own gas boiler		Combi gas boiler			Thermostat							3	5	Yes - a little	Yes - bathroom only	I don't have any	Yes	Maybe	I'm not sure what the survey was for?
Golden Lane Estate	Cuthbert Harrowing House	2-bed	Maisonette		Top floor	Own gas boiler		Combi gas boiler			Thermostat							2	5	Yes - a little	Yes - both		Yes	Yes	Double Glazing and roof insulation
Golden Lane Estate	Cuthbert Harrowing House	2-bed	Maisonette		Top floor	Own gas boiler		Combi gas boiler			Thermostat							6	7	No			Yes	Yes	
Golden Lane Estate	Great Arthur House	1-bed	Flat		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat			Open windows when it's too warm in the winter				2	8	Yes - a little	Yes - both		Yes	Yes	Nothing to add.
Golden Lane Estate	Great Arthur House	1-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat			Open windows when it's too warm in the winter				3	6	No	No - we turn it off	Open windows instead	No internet	Yes	
Golden Lane Estate	Great Arthur House	1-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							7	4	Yes - a little	Yes - both		Yes	Yes	We all need to audit our energy use
Golden Lane Estate	Haffield House	3-bed	Maisonette		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters						4	5	Yes - a little	Yes - both		Yes	Yes	
Golden Lane Estate	Haffield House	3-bed	Maisonette		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							3	6	No	No - we turn it off	We don't have any	Yes	Yes	
Golden Lane Estate	Haffield House	3-bed	Maisonette		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							7	7	Yes - a little	Yes - both		Yes	Yes	
Golden Lane Estate	Haffield House	2-bed	Maisonette		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters						2	5	No	No - we turn it off	I don't have a ventilation system I open the windows in the summer and the front door and kitchen window if I cook something with a lot of steam	Yes	Yes	I trust there will be a positive outcome to your research
Golden Lane Estate	Stanley Cohen House	2-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							2	6	Yes - a little	No - we turn it off	We do not have any	Yes	Yes	How many more years do we have to live in cold, noisy, dark rotten homes due to the corporation not double glazing our homes. We have rotting window frames, expensive fuel bills, damp, fungal spores and year after year we are let down. Pointless survey after survey like these, costing how much? Shameful!!!!!!
Holloway Estate	Crayford House	1-bed	Flat		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters						2	5	No	Yes - both		Yes	Yes	The draughty windows are a total disgrace. Why consult before fixing this serious problem You know about it please do something



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		How many bedrooms does your home have?	Which of the below best describes your home?	Which best describes your house	Which floor are you on?	What's the main heating source in your home?	Communal system	Combi gas boiler	Immersion heater	Point-of-use heater (e.g. electric shower, hot tap etc)	Thermostat	Additional plug-in electric heaters	Additional gas heaters	Open windows when it's too warm in the winter	No control	Other	You selected "other". Please briefly describe other ways in which you control the temperature of your home.	How comfortable is your home in the winter?	How comfortable is your home in the summer?	Does your home suffer from damp?	Do you use your kitchen and bathroom ventilation?	Could you tell us why you don't use all or some of your ventilation fans?	Do you have broadband and wifi?	Would you be willing to share your energy bill data with us (anonymously)?	If you would like to use this space to add anything else you would like to say.	
Please select the estate in which you live.	Please select the block in which you live.																									
Sydenham Hill Estate	Lammas Green	2-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat							3	6	No	No - we turn it off	I don't have them	Yes	Yes	I think the biggest issue for communal energy use at Lammas Green is the huge amount that the outdoor lighting around the green is often on, even in the middle of bright days. Such a tremendous waste! Hours and hours of the lights switched on, for absolutely no need. Really wasteful.	
Sydenham Hill Estate	Lammas Green	3-bed	House	End terrace		Own gas boiler		Combi gas boiler		Point-of-use heater	Thermostat							5	5	Yes - a little	Yes - kitchen only	Bathroom extractor needs connecting correctly, if the kitchen needs venting as open a door.	Yes	No	As far as is known all the houses in Lammas Green have cavity wall filling.	
William Blake Estate	Donnelly House	1-bed	Flat		Middle floor	Electric underfloor heating			Immersion			Additional plug-in electric heaters						2	6	Yes - a lot	Yes - both		Yes	Yes		
William Blake Estate	St James Mansions	1-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters						3	8	No	Yes - bathroom only	I have a window in my kitchen which I open but no window in my bathroom hence the ventilation fan comes on automatically when I switch on the light there.	Yes	Yes	Much of the temperature problems in my flat are due to badly fitting windows - gaps where heat escapes, and draft comes in: single glass which does not provide much insulation either against cold air/wind or heat/direct sun.	
William Blake Estate	St James Mansions	1-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat	Additional plug-in electric heaters						4	8	No	Yes - bathroom only	There is only a ventilation system in the bathroom as it's a windowless room. Ventilation only comes on when light is switched on - it'll go off soon after light is turned off.	Yes	Yes	The biggest problem about wasted energy use in my flat is due to the number of ill fitting single-glazed windows - I lose a lot of heating due to draft problems even when windows are closed	
Windsor House	Windsor House	2-bed	Flat		Middle floor	Communal heating		Combi gas boiler			Thermostat							1	9	Yes - a lot	Yes - both		Yes	Yes	The windows are archaic. The walls are also badly insulated, so they often become very cold in the winter, and as soon as humidity touches the cold walls, mould grows.	
Windsor House	Windsor House	1-bed	Flat		Ground/Lowest floor	Own gas boiler		Combi gas boiler			Thermostat			Open windows when it's too warm in the winter				0	2	Yes - a lot	Yes - both		Yes	Yes	Windsor house ground floor has a huge problem with damp. I have to run a dehumidifier all winter and most of summer to keep it under control which is hugely damaging to the environment.	
Windsor House	Windsor House	2-bed	Flat		Middle floor	Own gas boiler		Combi gas boiler			Thermostat			Open windows when it's too warm in the winter				3	10	Yes - a lot						
York Way Estate	Kinefold House	2-bed	Flat		Ground/Lowest floor	Electric storage heater				Point-of-use heater	Thermostat							5	5	No	Yes - bathroom only	Does not work correctly	Yes	Maybe	Since we were moved from Gas to electric systems, our costs for energy have gone through the roof. This as resulted in us not using heating during winter months, which is not really acceptable in this day of age.	
York Way Estate	Kinefold House	3-bed	Flat		Middle floor	Communal heating	Communal system								No control				3	8	No	Yes - bathroom only		Yes	No	
York Way Estate	Lambfold House	2-bed	Flat		Top floor	Communal heating	Communal system									Other: Inefficient thermostats on radiators. Either off, or full bore.		8	10	No	No - we turn it off	The noise is like a jet engine and can't be controlled.	Yes	No	The flats become unbearably hot in sunny weather in summer - I need to run fans most of the time. This is due to large windows, which are nearing the end of their useful life - several leak. If they could be replaced, or have a reflective thermal film applied, the flat would be cooler and energy used in running the fans can be saved.	
York Way Estate	Lambfold House	2-bed	Flat		Middle floor	Communal heating	Communal system				Thermostat							6	8	No	Yes - both		No internet	Maybe	I don't take part in online forums	
York Way Estate	Penfields House	3-bed	Flat		Middle floor	Communal heating		Combi gas boiler							No control				7	5	No	Yes - both		Yes	Maybe	



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# Retrofit London Housing Action Plan

July 2021 | Rev N





# Introduction to the Retrofit London Housing Action Plan

## The need to act now

The threat posed by climate change requires all levels of government to act with ambition and at pace if we are to combat and avoid its worst effects.

The London Councils Joint Statement on Climate Change demonstrated London local government's determination to act and established a series of stretching commitments on behalf of all 33 councils that strive for a level of ambition necessary to address the challenges we face.

## A collective Action Plan

The Retrofit London Housing Action Plan sets out a path to achieving the first of these pledges: to bring forward a cross-tenure home retrofitting programme in London that can achieve an average EPC B rating by 2030. It also further substantiates this by introducing a series of metrics to guide boroughs' retrofitting activity – including metrics on overall carbon emissions, space heating demand and energy use – to ensure the average EPC B target is achieved in a way that can fully realise London's ambitions to address climate change and alleviate fuel poverty.

Councils are uniquely placed to drive forward retrofit locally, both through acting on their own stock, and by utilising their local connections to residents, private landlords and housing associations to achieve a cross-tenure approach.

## Significant benefits can be delivered

The benefits of the plan are substantial. Not only does the action plan provide a framework for achieving the commitments that all levels of government have to drastically reduce carbon emissions, it also provides an opportunity to grow the green economy, create thousands of new jobs and provoke innovation within the sector.

## London can and should be at the forefront of this agenda.

This plan is ambitious; successful delivery will require coordinated and consistent action from local, regional and central government, as well as the private sector and other key stakeholders. Most notably, councils face significant funding constraints that present a barrier to the full realisation of this plan, while the wider policy challenges identified, such as in relation to planning, the cost of electricity and trades capacity, require a joined up approach to resolve.

By working collaboratively, the action plan can prompt the necessary step change in home retrofitting across London and support wider efforts to tackle the climate emergency.





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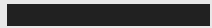
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# 10-min summary



This section provides a high level summary of the Retrofit London Housing Action Plan. It explains why it was commissioned and where it sits in relation to the whole process led by London Councils to address the retrofit challenge.

The key principles which underpin the Action Plan and the list of recommended actions are provided.

More information on each of them can be found in the report.



# The London Housing Retrofit Action Plan project

## Retrofitting London's homes is crucial

According to a recent poll<sup>1</sup>, the overwhelming majority of Londoners (82%) are concerned about climate change, with 40% describing themselves as 'very concerned'.

In order to respond to their concerns and for London to play its part in mitigating climate change, retrofitting London's homes is crucial. Fossil fuel heating needs to be phased out, houses and blocks of flats need to become more energy efficient, and they should contribute to the generation of solar renewable electricity.

## A daunting challenge, which we should address together

Each house and block of flats is different, and tenure is also a key consideration. And the retrofit challenge is happening at a time of huge pressure on local authorities (e.g. limited budgets, building safety, etc.).

Not knowing where to start, we may not retrofit our homes as the challenge seems too complex. It is not: by working together, London boroughs can make it simpler and address the different issues, one by one. This Retrofit London Housing Action Plan is seeking to articulate the actions needed to achieve this.

The aim of this project is to develop a pan-London, borough-owned action plan to determine the most effective suite of retrofitting measures to achieve the key target of average EPC B by 2030, incorporating a radical reduction in carbon emissions and a suite of other complementary targets, together with recommended actions in terms of delivery, skills, costs, funding and communication. The Action Plan looks forward to the ultimate aim of achieving Net Zero by 2050 at the very latest.

<sup>1</sup> What do Londoners think about Climate Change? Results from London Council's 2020 climate change polling, London Councils, 2021

## Genesis of the project

The project is funded by London Councils, the London Housing Directors' Group, the Greater London Authority and the London Environment Directors' Network (LEDNet).

In December 2019, London Councils agreed an ambitious Joint Statement on Climate Change, which sets out the boroughs' approach to governance, citizen engagement and resourcing for climate change, as well as seven major programmes for cross-borough working.

In 2020, TEC endorsed a lead borough or boroughs for each of these programmes, who will be responsible for overseeing implementation of the action plan for each area:

### #1 Retrofit London

### #2 Low-carbon development (i.e. new buildings)

### #3 Halve petrol and diesel road journeys

### #4 Renewable power for London

### #5 Reduce consumption emissions

### #6 Build the green economy

### #7 Creating a resilient and green London.

This project is part of Programme **#1 Retrofit London**; the lead boroughs are LB Enfield and LB Waltham Forest and it focuses on housing.



# Overview of key challenges at each stage of the retrofit process

The Retrofit London Housing Action Plan will only be able to succeed if we are able to meet a number of key challenges.

## Demand and take-up

Increasing the quantity of retrofit work being undertaken will support development of the skills and technology needed in London, with many benefits to the local economy beyond the core aim of reducing carbon emissions.

Many homeowners and landlords are currently unaware of what they can or should achieve with retrofit and they will not act until they are confident about what needs to be done.

## Technical

Every home presents a different set of issues. The possible solutions can be confusing and the relative benefits and risks are generally not well understood by the general public. Reliable and accessible information is needed if some pitfalls are to be avoided, with the reputational risk to the whole programme that significant failures could bring.

## Finance

The plan has to recognise that individual homeowners and many landlords cannot afford to carry out a full retrofit of properties in a single phase, so a process is required which allows smaller steps to be taken which lead to the necessary ultimate performance.

London local authorities have limited means due to the considerable competing demands on their resources. Recent government schemes have increased the public funds available, but not yet to the level required, and private finance solutions are not yet widely available.

## Delivery and supply

Once homeowners and landlords have decided what to do and when, they need to be able to call on a capable and reliable supply chain which will deliver the work to a sufficient level of quality.

## Technical

- Retrofit often appears to be an excessively complex set of measures.
- Tenure adds another element of complexity.
- Retrofit can be over-simplified, leading to inappropriate measures and potential issues (e.g. moisture in walls).
- The risks involved in retrofit are not clearly identified and catalogued per measure.

## Delivery and supply

- The customer/client journey is challenging.
- The choice often appears to be between (expensive) professionals or contractors lacking an overview or understanding of the end goal.
- Every new retrofit needs to manage risks on its own (e.g. procurement, heat pump installation and commissioning) instead of mutualising them.
- Planning is a very clear hurdle.

## Costs/funding

- The costs of retrofit are high and the financial benefits can be unclear and uncertain.
- Energy cost savings are generally not a sufficient motivation.
- Running costs of heat pumps (including maintenance) are perceived as a concern.
- Application for grant funding is complex and uncertain.
- Procuring the services of an architect or a Retrofit Coordinator can be seen as expensive.

## Demand and take-up

- Is my home emitting too much carbon? Can I significantly reduce its carbon emissions and put it on the right track towards Net Zero? It is difficult for Londoners to access responses to these basic questions.
- Finding reliable advice on what to do is also not straightforward.
- It is very difficult to determine the relevance of generic information and there is a clear need for more specific advice.

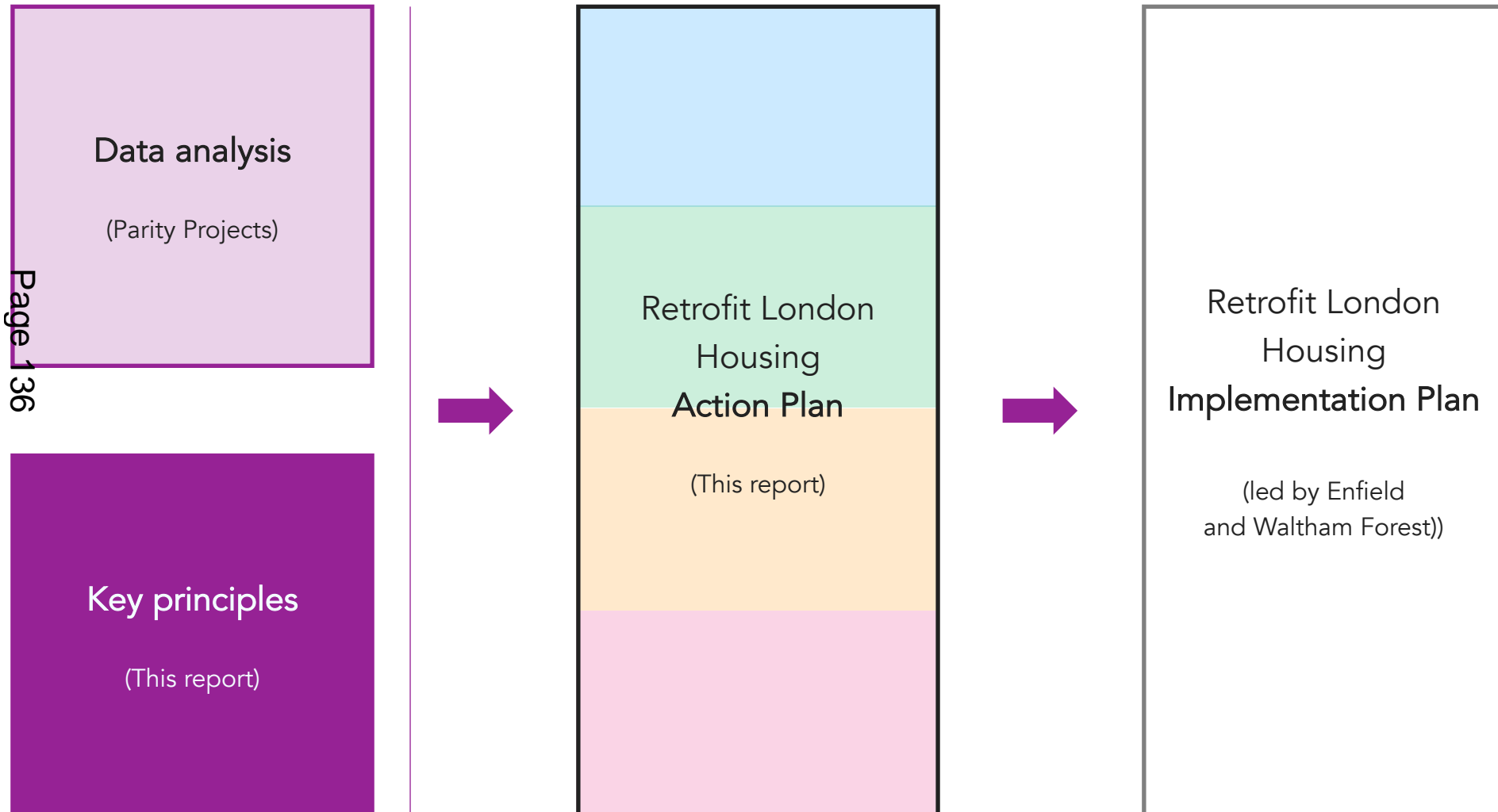


## A structured approach to the challenge

This project is part of a wider process to develop the Retrofit London programme.

It has been informed by Parity Projects' data analysis summarised in the *London Councils: Pathways Report*, and includes some extracts of their analysis.

It will form the basis of the Implementation Plan which will be led by Enfield and Waltham Forest.

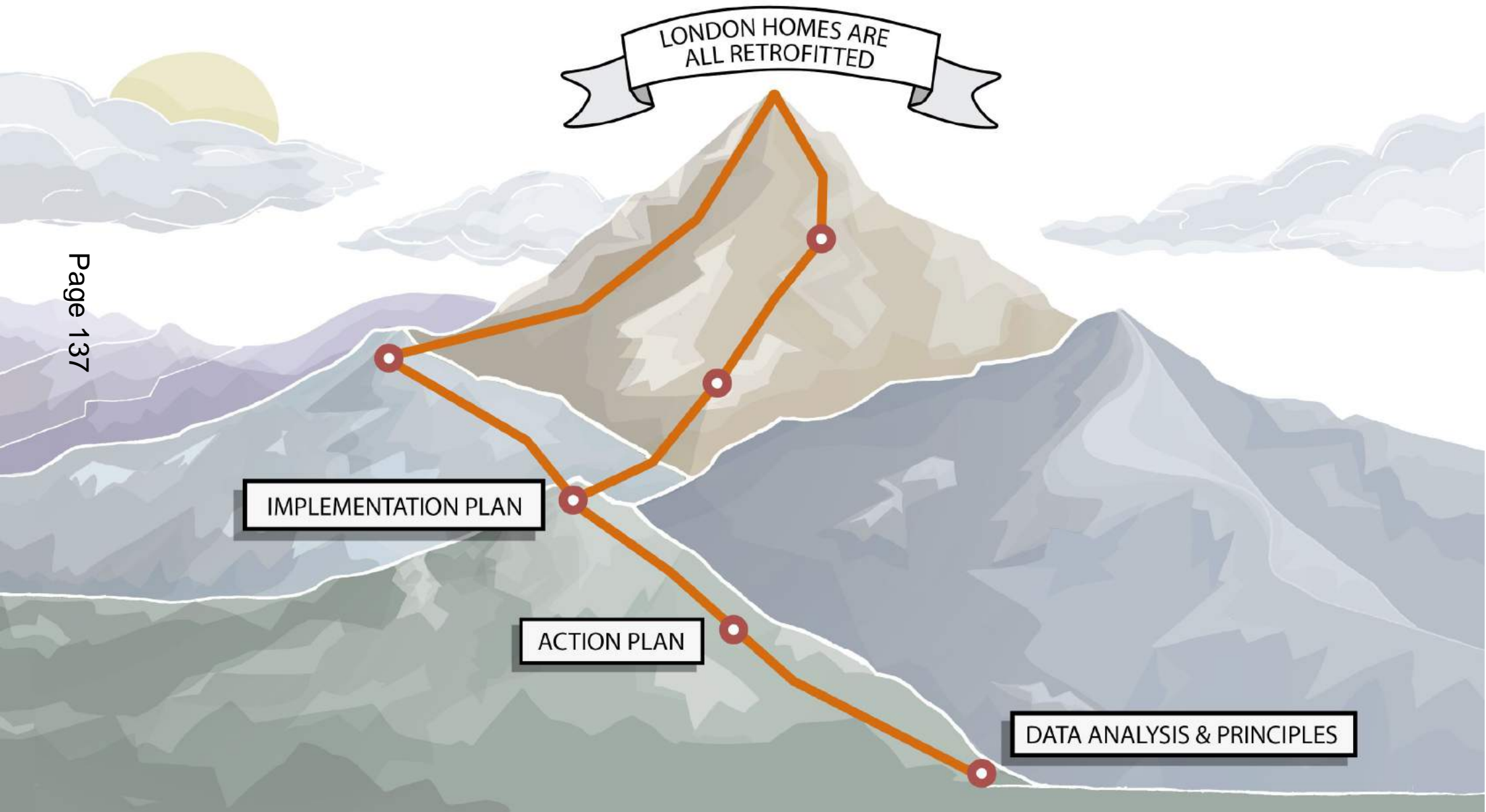




## A structured approach to the challenge

Working together on data, principles, this action plan and later the implementation plan helps to prepare and map out the next steps of this challenging and ambitious journey.

We need to avoid paths which go in the wrong directions and focus on those which will achieve the ambition.





# The eight key principles underpinning the action plan

## Facing in the same direction

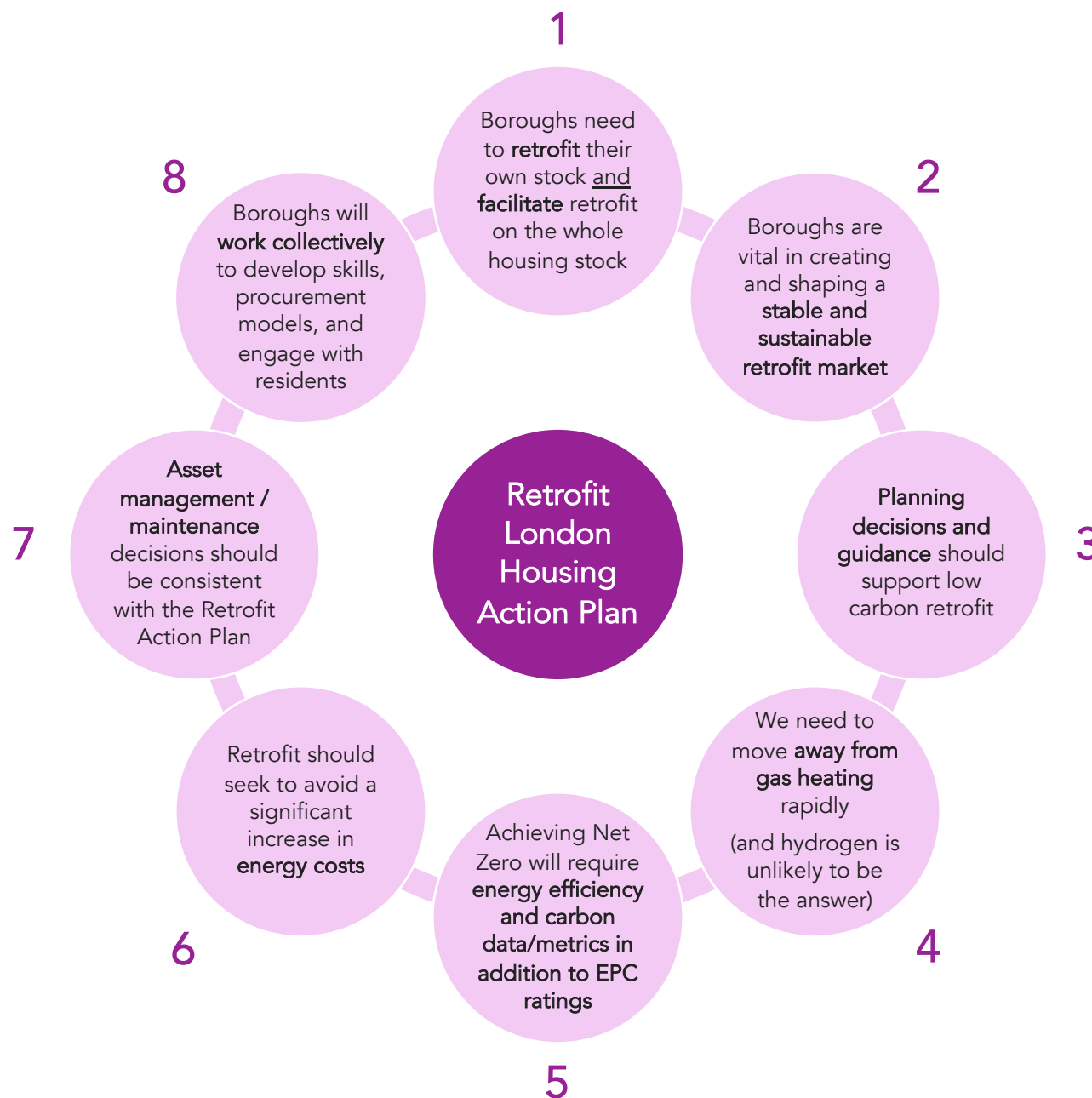
The plan is built around a set of core principles that apply to all boroughs and underpin all of the proposed actions.

It is important for the London boroughs and their partners, including GLA, to be aligned and therefore moving in the same direction, albeit at different speeds and with a varying focus, depending on the particular issues affecting each local area.

Those differences will create different emphasis and potentially altered priorities from borough to borough and even within individual boroughs.

However, having a common set of over-arching goals will allow consistent policy to be set so the regional level issues such as infrastructure development, workforce training and housing quality standards are clear and unambiguous to those businesses and other organisations who are vital to the successful delivery of the plan.

For investment in the significant costs of the work needed to be forthcoming, a clear set of aims is a vital first step.





# Summary of recommended actions

## Decisive steps forward

The key recommended actions of this Retrofit London Housing Action Plan are listed in the adjacent table, split by category:

- **Retrofit measures and plans**
- **Delivery models, skills and supply chain**
- **Costs, funding and finance**
- **Engagement, take-up and lobbying**

Some of them include more detailed activities and each action and activity is explained succinctly in this report. Together they represent decisive moves towards addressing the housing retrofit challenge in London.

The full list of actions and activities is provided in a separate spreadsheet which London Councils and the lead boroughs of Enfield and Waltham Forest can develop, add to and implement together with the other boroughs when this phase of the project has been completed.

It is important to note that **these actions cover all tenures**: social housing (including but not limited to councils' own stock), owner occupied homes as well as private rented homes. The following page identifies which actions relate to:

- The retrofit of councils' own stock
- Facilitation of retrofit for the rest of the housing stock in London
- Efforts towards developing and securing additional funding and support.

Retrofit measures and plans	
1	Improve the building fabric of London's inefficient homes
2	Develop a plan for retrofitting ventilation systems to improve health and air quality
3	Electrify heat
4	Deliver smart meters and demand flexibility (controls, storage) in retrofitted homes
5	Increase solar energy generation on London homes
6	Map out each building's journey towards lower energy costs and Net Zero
Delivery models, skills and supply chain	
7	Review current maintenance programmes and identify retrofit opportunities
8	Facilitate procurement of materials and services at a larger scale
9	Enable planning to facilitate low carbon retrofit, including in Conservation Areas
10	Develop retrofit skills actively across London
11	Set up a clear and consistent system to report and monitor progress (and success)
Costs, funding and finance	
12	Establish the cost of retrofit, business case and funding gap for the different tenures
13	Maximise capital finance for council owned stock (and eligible homes)
14	Create a 'Finance for retrofit' taskforce with finance experts
15	Support the owner occupier and PRS sectors to leverage private investment
Engagement, take up and lobbying	
16	Social housing: engage with tenants, leaseholders and other registered providers
17	Engage with owner occupiers and the Private Rented Sector
18	Lobby Central Government for more support, guidance and funding
19	Develop and implement the Action Plan together



## Summary of recommended actions

		Retrofit of councils' own stock	Facilitation of retrofit for rest of housing stock	Develop and request additional funding and support
1	Improve the building fabric of London's inefficient homes	●		
2	Develop a plan for retrofitting ventilation systems to improve health and air quality	●		
3	Electrify heat	●		
4	Deliver smart meters and demand flexibility (controls, storage) in retrofitted homes	●		
5	Increase solar energy generation on London homes	●		
6	Map out each building's journey towards lower energy costs and Net Zero	●		
7	Review current maintenance programmes and identify retrofit opportunities	●		
8	Facilitate procurement of materials and services at a larger scale	●	●	
9	Enable planning to facilitate low carbon retrofit, including in Conservation Areas	●	●	
10	Develop retrofit skills actively across London	●	●	●
11	Set up a clear and consistent system to report and monitor progress (and success)	●	●	
12	Establish the cost of retrofit, business case and funding gap for the different tenures	●	●	
13	Maximise capital finance for council-owned stock (and eligible homes)	●		●
14	Create a 'Finance for retrofit' taskforce with finance experts	●	●	●
15	Support the owner occupier and private rented sectors to leverage private investment		●	●
16	Social housing: engage with tenants, leaseholders and other registered providers	●	●	
17	Engage with owner occupiers and the private rented sector		●	
18	Lobby central Government for more support, guidance and funding			●
19	Continually develop and implement the Action Plan together	●	●	●



# 1.0

## Introduction

### Housing retrofit: importance, challenges and current initiatives

Page 141

This section provides an introduction to the Retrofit London Housing Action plan.

It sets out why urgent action is needed, which objectives need to be achieved and what is currently happening in this area. It also identifies a number of current challenges.



# The Retrofit London Housing Action Plan | Genesis and brief

The project is funded by London Councils, the London Housing Directors' Group, the Greater London Authority and the London Environment Directors' Network (LEDNet).

London Councils represents London's 33 local authorities. It is a cross party organisation that works on behalf of all of its member authorities regardless of political persuasion. One of its committees is the Transport and Environment Committee (TEC).

LEDNet is the membership association for London's Environment Directors.

## London Councils' action on climate change

In December 2019, London Councils agreed an ambitious Joint Statement on Climate Change, that sets out the boroughs approach to governance, citizen engagement and resourcing for climate change, as well as seven major programmes for cross-borough working.

In 2020, TEC endorsed a lead borough or boroughs for each of these programmes, who will be responsible for overseeing implementation of the action plan for each area:

### #1 Retrofit London

### #2 Low-carbon development (i.e. new buildings)

### #3 Halve petrol and diesel road journeys

### #4 Renewable power for London

### #5 Reduce consumption emissions

### #6 Build the green economy

### #7 Creating a resilient and green London.

## #1 Retrofit London

This project is part of Programme #1 *Retrofit London* and focuses on housing. It covers all tenures and not only council-owned stock. The lead boroughs are Enfield and Waltham Forest.

The Joint Statement on Climate Change commits boroughs to working together to retrofit London's building stock to an average level of EPC B by 2030. The aim of this project is to develop a pan-London, borough-owned action plan to determine the most effective suite of retrofitting measures to achieve our target of average EPC B by 2030 or another target which better conceptualises the level of ambition, together with recommended actions in terms of delivery, skills, costs, funding and communication.

## Metrics and target

The issue of metrics and targets was discussed right at the outset of this project. It was agreed to go beyond the single metric of the EPC rating (which is only an energy cost metric) for the modelling undertaken by Parity Projects and complement it with additional metrics including kgCO<sub>2</sub> (for carbon), kWh/m<sup>2</sup>/yr (for energy efficiency) and connection to gas grid (for fossil fuel use). Each metric is accompanied by a target.

Net Zero is recognised as the ultimate goal, it has a legislative footing, significant political traction and is something which must inform the actions now. The risk of having the EPC B target as the key objective is that it may lead to decisions which would not be compliant with the Net Zero horizon we must now all work together towards.



# Housing retrofit: the first priority to deliver shared climate ambitions across London

## The climate emergency and Climate Action Plans

London local authorities have already committed to a strategic objective to retrofit all domestic buildings to an average level of EPC B. In addition, all boroughs have published or are in the process of developing a Climate Action Plan to address the climate crisis and achieve Net Zero.

Homes are responsible for around one third of London's greenhouse gas emissions and a quarter of them have the worst energy performance rating. The Climate Change Committee advises that that we need a near complete decarbonisation of homes, and that this should be achieved through low carbon heat to all but the most difficult to treat buildings.

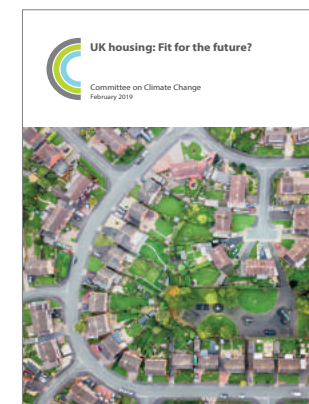
## The benefits of a Retrofit London Housing Action Plan

The retrofit and decarbonisation of London's housing stock can reward us with many other benefits, including: addressing fuel poverty, improving people's health, benefitting air quality (a significant issue in London) and providing a significant source of jobs for the future and economic benefit. These themes are particularly relevant to a green recovery from Covid-19 and London's Green New Deal mission.

## The concept of carbon budgets and what it means

Tyndall Carbon budget reports derive fair carbon budgets for the UK and its local authority areas from IPCC global carbon budgets for staying within a 2°C global temperature rise.

If London were to continue to emit CO<sub>2</sub> emissions at current (2017) levels, its entire carbon budget would be used **by 2027**. Total CO<sub>2</sub> emissions cuts must therefore average **-12%** per year to deliver a Paris aligned carbon budget. Achieving the sort of reductions needed will require an immediate and rapid switch away from gas for heating, the majority of which needs to be completed in the next 10 years.



The legal obligation for the UK to achieve Net Zero by 2050, the declarations of climate emergency of many London boroughs and the crucial role of housing justify the development of an ambitious Retrofit London Housing Action Plan (above: CCC Net Zero and Future of Housing reports, 2019)



200 MtCO<sub>2</sub>

Estimation of London's portion of the **remaining carbon budget** for staying well below 2°C global temperature rise.



7 years

The number of years it would take London to **consume its entire carbon budget** at current emissions rates



-12%

**Annual reduction in CO<sub>2</sub> emissions** London should achieve on average to stay within its carbon budget.

Tyndall Centre carbon budget report for London in numbers. Figures relate to CO<sub>2</sub> from energy only and cover energy used by buildings and transport.

**Decarbonisation of existing housing stock is a crucial action area.**



# A common Net Zero horizon

## Net Zero Carbon: What are we trying to achieve?

One simple way to translate the ultimate net zero carbon buildings ambition is to see it as the need to generate all of buildings' energy needs from renewable or nuclear energy sources. This will require a reduction in energy use coupled with an increase in renewable energy generation, as well as phasing out fossil fuels. It is now a legal requirement for the UK to achieve Net Zero by 2050 and a large number of London boroughs and the Mayor of London have set an earlier target.

## No offsets

The Climate Change Committee is very clear that the housing sector should not rely on carbon offsets/removals (e.g. CCS, afforestation) to achieve Net Zero.

## Net Zero operational carbon

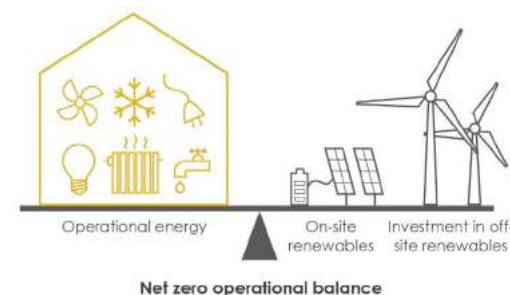
Where possible, Net Zero operational carbon should be achieved on-site. This means that the total renewable energy generated on-site (e.g. through Solar PV) meets or exceeds the energy required by the building.

- Firstly **energy use has to be reduced at the point of use**.
- Secondly, **all fossil fuel heating must be replaced with low carbon heat**.
- Thirdly, **renewable energy generation should be maximised** on site, then provided as locally as possible unless there is a very valid reason not to do it<sup>1</sup>.

## Embodied carbon

This study focuses on greenhouse gas emissions associated with operational energy use only, not embodied carbon of materials. Embodied emissions are very important though and should be a key consideration.

<sup>1</sup> Some buildings will not be able to generate sufficient energy on site to match their annual energy use, so we need to maximise generation on all buildings and then generate off-site, but locally. Net Zero balances across the country and in London in this case cannot always rely on solutions off-site. They often appear more convenient or cheaper but may not be so.



If we want the housing stock in London to achieve Net Zero, we must use have an objective not to use more energy than what can be generated by renewable energy on-site ideally or off-site if it is not feasible (Source: LETI)

## 6 steps towards Net Zero operational carbon (and associated metrics)

1	<b>Low space heating demand</b> e.g. kWh/m <sup>2</sup> /yr space heating demand
2	<b>Low total energy use</b> e.g. kWh/m <sup>2</sup> /yr Energy Use Intensity (EUI)
3	<b>Low carbon heat (no fossil fuels)</b> e.g. kgCO <sub>2</sub> /m <sup>2</sup> /yr for heating system average for 2021-2050
4a	<b>Maximise renewable energy generation on-site</b> e.g. kWh solar energy generation/m <sup>2</sup> building footprint/yr
4b	<b>Maximise local renewable energy generation</b> e.g. kWh in the borough
5	<b>Energy flexibility</b> e.g. Smart Readiness Indicator or kWh/m <sup>2</sup> / energy storage
6	<b>Reduced performance gap</b>

*The Retrofit London Housing Action Plan needs to consider these 6 steps for each home. What can be achieved at each of these steps will depend on the typology but they are all important if we are to achieve Net Zero. Possible indicators are provided above.*



# Housing retrofit in the context of the electricity and data revolution

## Towards a decarbonised and smarter electricity system

The carbon content of electricity has fallen over the last few years. It is now three times less than 10 years ago and already lower than natural gas. It is forecasted to continue to reduce even further in the next 20-30 years. This explains the current energy revolution and the very likely electrification of transport and heat as the best strategy to move away from fossil fuels.

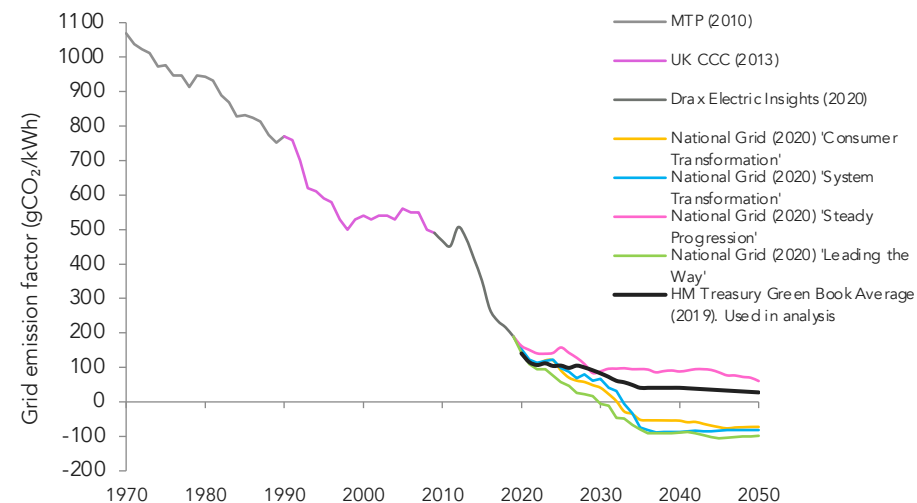
In order for this revolution to be successful and as cost effective as possible, it is very important to reduce energy use (so that energy demand is not more than renewable and nuclear energy generation by 2050) and for demand to be flexible so that energy is used at times of high renewable energy generation. Energy storage (e.g. hot water tanks) and management (e.g. smart controls) as well as smart meters for Time of Use (ToU) variable electricity tariffs are therefore all likely to become increasingly important

for our homes. Electric vehicle charging from homes will also create additional demand for electricity.

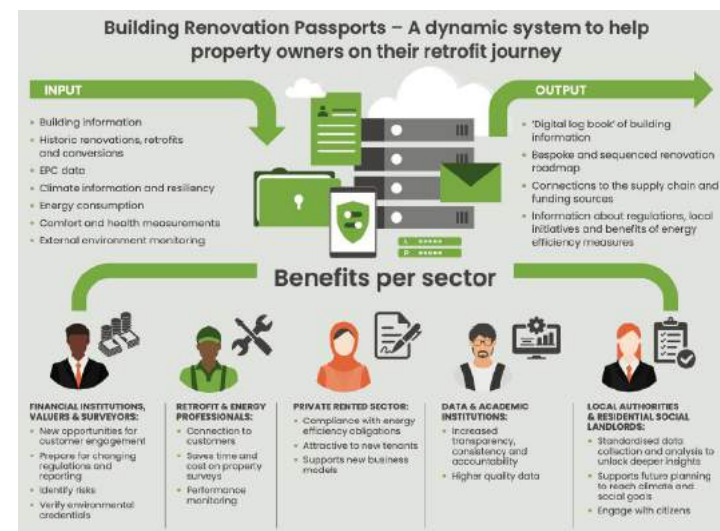
The current disparity in cost between gas and electricity is an issue and is discussed in more detail in this report.

## Data and knowledge

We come from a time when very little was known about each dwelling in London to one where data can really help us to understand the problem and address it. There is also a growing need (and demand) for information on each dwelling to be accessible and up-to-date to current and future residents. Building Renovation Passports can play a significant role to slowly develop this data on existing housing and capitalise on it.



Long-term variations in emission factor of grid electricity show the rapid historical reduction in emission factors. © Etude based on data from Market Transformation Programme, UK Committee on Climate Change, Drax, National Grid and HM Treasury.



Recommended data inputs and outputs of a Building Renovation Passport and the benefits such a tool could bring to different sectors © Green Finance Institute



# What is currently happening with home retrofit in London, and why it is not enough

## There is no regulatory framework

Improving the energy efficiency of existing homes, moving away from gas boilers and installing solar PVs to generate electricity are not sufficiently supported by the current regulatory framework. In particular, it does not encourage enough whole house retrofit and heat decarbonisation and does not capture all opportunities or trigger points.

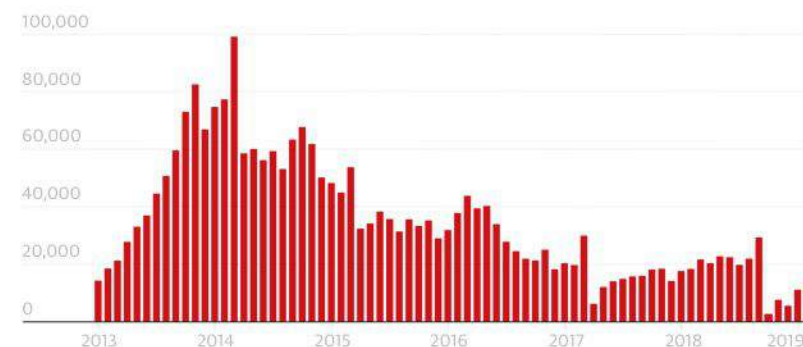
There is also no consistent and coordinated funding that covers all elements of the puzzle: fabric, heat source and renewable energy generation.

Supporting initiatives, while welcome, are still of a very small scale, and they often support individual measures rather than a whole-house approach. They have not yet reached the tens of thousands of homes required to start really building capacity.

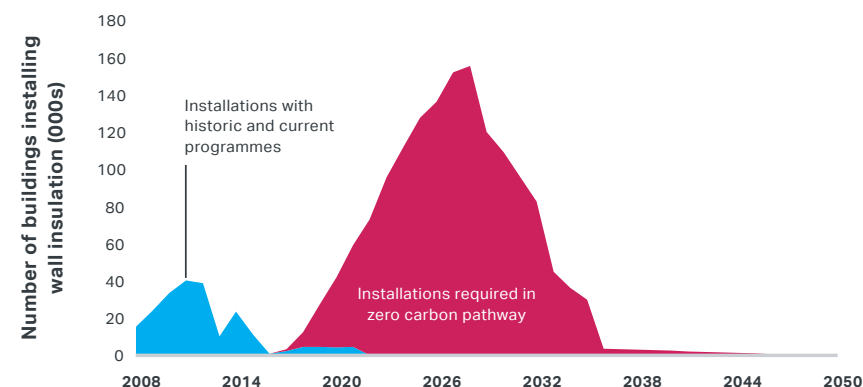
## Not enough retrofits in London, and not low carbon enough

As a result, there are not enough retrofits happening and their impact is very variable. Crucially, this does not support the required upscaling and upskilling of supply chains, nor does it realise the job creation and retention potential a full retrofit programme could deliver.

If London were to wait for a sufficiently ambitious national frameworks to be put in place, it is likely that a large portion of its carbon budget would be used. This is one of the key reasons why this Retrofit London Housing Action Plan is required now.



The number of energy efficiency measures installed nationally is very low and has been declining (right - © The Guardian, using BEIS data).



Level of wall insulation achieved with past programmes compared with level required in London's zero carbon pathway (ARUP report, quoted in Mayor of London Zero carbon London - A 1.5°C compatible plan, December 2018)



# Overview of key challenges at each stage of the retrofit process

If we want the Retrofit London Housing Retrofit Action Plan to have a positive impact, we need to be honest about what the key challenges are.

## Demand and take-up

As individuals and organisations change their behaviour, it is very reasonable to think that more and more will want to retrofit their homes to contribute towards Net Zero Carbon. However, homeowners and landlords are currently unaware of what they can or should achieve with retrofit, partly due to weak regulatory drivers and the lack of robust data. This needs to be addressed if we want to switch the demand on.

## Technical

Retrofit needs to be specific to each home and household: there is a technical complexity which can be simplified but not excessively so. This balance has not been achieved yet, leaving homeowners and landlords confused or advised with inappropriate recommendations.

## Finance

Most landlords and homeowners are not able to pay for whole house low carbon retrofit in one phase. A long term whole house renovation plan would address these barriers by identifying measures that can be implemented as part of a cohesive long term plan towards a clear end goal. They are however, also underlying funding issues: London local authorities have limited means due to the considerable financial pressures they are under, and the additional building safety improvements now required. Recent Government funding schemes have ramped up public funding, but not yet to the level required, and private finance solutions are not yet widely available.

## Delivery and supply

Once homeowners and landlords have decided what to do and when, the next challenge is to facilitate access to a quality supply chain which would deliver part of the plan to a sufficient level of quality.

## Technical

- Retrofit often appears to be an excessively complex set of measures.
- Tenure adds another element of complexity.
- Retrofit can be over-simplified, leading to inappropriate measures and potential issues (e.g. moisture in walls).
- The risks involved in retrofit are not clearly identified and catalogued per measure.

## Delivery and supply

- The customer/client journey is challenging.
- The choice often appears to be between (expensive) professionals or contractors lacking an overview or understanding of the end goal.
- Every new retrofit needs to manage risks on its own (e.g. procurement, heat pump installation and commissioning) instead of mutualising them.
- Planning is a very clear hurdle.

## Costs/funding

- The costs of retrofit are high and the financial benefits can be unclear and uncertain.
- Energy cost savings are generally not a sufficient motivation.
- Running costs of heat pumps (including maintenance) are perceived as a concern.
- Application for grant funding is complex and uncertain.
- Procuring the services of an architect or a Retrofit Coordinator can be seen as expensive.

## Demand and take-up

- Is my home emitting too much carbon? Can I significantly reduce its carbon emissions and put it on the right track towards Net Zero? It is difficult for Londoners to access responses to these basic questions.
- Finding reliable advice on what to do is also not straightforward.
- It is very difficult to differentiate the relevance of generic information and the need for specific advice.



# Climate justice and the need to help those in fuel poverty

## ECO and the Green Homes Grant voucher scheme are not reaching fuel poor homes in London

Around 12% of households in London live in fuel poverty. London local government feels that ECO is not providing the capital with a fair share of funding from energy suppliers. Under the Green Homes Grant there have only been 2,894 applications by low-income households in London out of the more than 350,000 households currently in fuel poverty.

## Directing the funding to those most in need

The Government's Fuel Poverty Strategy uses the EPC rating of the home as well as the household's income to define the problem and direct resources to those in most critical need of support. This approach leads to two potential issues: as residents move home, the calculation and therefore the availability of government support varies; and many of those in fuel poverty in London are living in flats, adjacent to families who do not necessarily meet the same assessment criteria and who therefore may not have access to the same support funds.

For retrofit work to progress reasonably consistently, it may be necessary to focus on the decarbonisation of the buildings and to address fuel poverty in conjunction (e.g. through financial support), instead of considering them as single issue.

## A whole house approach will help reduce fuel poverty

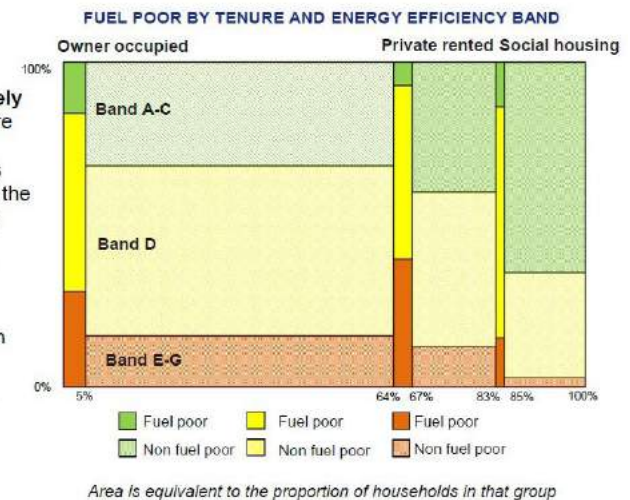
Replacing a gas boiler with a heat pump without carrying out fabric improvements could, in some cases, lead to an increase in annual energy costs, which would be an issue for those already living in or close to fuel poverty. However, better energy efficiency, better ventilation and improved air quality as well as mitigation of overheating risks will all deliver better living conditions and health outcomes for the groups most at risk of fuel poverty – the very young and the very old. A whole house approach allows prioritisation of the measures carried out to be adapted to the means and needs of residents without compromising the ultimate aim.



Households living in **privately rented accommodation** are most likely to be fuel poor (17.7%) though households who **own their home** have the largest average gap (£385)

Owner occupiers that **own their home outright** are less likely to be fuel poor (7.6%) than those with a mortgage (9.1%).

The majority of fuel poor households are owner occupied (51.3%)

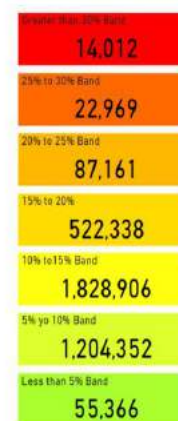


**Fuel Poverty in the UK affects all tenure groups.**

(Source: BEIS Fuel Poverty Factsheet 2020 (2018 data))

Fuel Poverty Risk - based on Government published data drawn from English Housing Survey

The number of filtered properties that are located in LSOAs with the stated Fuel Poverty Risk %. For example 1,842,918 properties are in an LSOA that has over 10% to 15% of the households expected to be in fuel poverty. N.B. If your properties are only a subset of the properties in the LSOA then you should not expect the % risk to directly apply to your properties as they may not be representative of the LSOA.



**The map shows postcodes in LSOAs with a greater than 20% risk of fuel poverty.**

(Source: Parity Projects' London Councils: Pathways Report, April 2021)



# Juggling priorities | Financial pressure, affordable housing, building safety, Covid-19... and climate change

## A very challenging time for Local authorities

Solving the retrofit challenge is not a simple task. There are many interrelated factors, objectives, requirements, circumstances and constraints to consider. It also comes at a particularly challenging time for London local authorities:

- There are a number of obligations and priorities which all appear essential: providing more affordable housing, improving existing buildings to make them safer, recovering from Covid-19, etc.
- The financial means of local authorities have rarely been so limited. After 10 years of increasing financial pressure, London local authorities are in a much more challenging financial position than when they embarked on their Decent Homes improvement programme.

## Climate change action is crucial

We can be forgiven for not giving climate change the sense of priority and urgency it deserves because other issues appear to be more immediate.

However, not solving climate change will lead to very significant economic and democratic issues in the medium to long term.

For too long the complexity inherent in the retrofit challenge has also delayed real progress from happening. It is no longer an option to remain stuck and we must implement existing solutions and develop new ones.

Barriers must be viewed as an opportunity to innovate and creatively find solutions that deliver multifarious benefits.

*Where does the issue sit within the wider system? What is it dependent on and what depends on it? What is complicit in supporting it as a problem, and what would need to happen for it not to be a problem any longer?*

Only through investing time to explore questions such as these will solutions to persistent barriers and challenges be found.



Many London local authorities have to invest in building safety improvements for their own stock (Picture above: the Granville Road tower blocks in Childs Hill during recladding, Source: Google)

"We have to get to the point where each individual, each corporation, each community chooses low carbon, because it makes fundamental sense. It should become a no-brainer."

Christiana Figueres

Former Executive Secretary of the UN Framework Convention on Climate Change (UNFCCC)



# Different typologies, different challenges

## The challenges and opportunities are not the same

As we all know, the variety of different types of homes that exist across London is large. While we can arrange them into broad typologies, there will still be unique features of each building that will require attention. Two homes are rarely exactly the same.

## Houses and flats

Houses typically consume the most energy and emit the most CO<sub>2</sub>. They are also in some ways the easiest to retrofit. The owner or landlord will likely have autonomy over the measures chosen, space will likely be more easily found for a heat pump system (internally and/or externally) and the roof is likely to be suitable for PVs which can be directly connected.

However, their large external area may require significant investment in retrofit measures to reduce overall energy use. On the other hand flats typically have lower heat loss: some flats may only have one external wall. Replacing the gas boilers with a low carbon heating system may be more challenging though and opportunities for solar PVs more limited.

## Building age

The age of the dwellings is another important factor. In general, older properties with solid walls and single glazing are very inefficient. Older properties also need to “breathe” to maintain the integrity of their fabric. Careful retrofit of the fabric of older properties therefore has a lot of potential to reduce energy. For more efficient dwellings it is possible that replacing the gas boiler for an air source heat pump with smart controls is all that needs to happen, or could be a viable first step.

## Tenure

The type of tenure has a very significant impact on the opportunities and the incentives to deliver retrofit: not so much in terms of the types of measures applicable but on how they can be delivered. Owner occupied homes, social rented homes and those which are privately rented should be considered separately.



*Detached houses vs flats.*



*Victorian terrace houses*



*Modern terrace houses*



# Good work is already taking place in London and we need to build upon it

## Current initiatives from London boroughs

Virtually all London boroughs are developing good and best practice retrofit initiatives. These include demonstrator projects (both houses and blocks of flats), specific work on heat decarbonisation, renewable energy generation, demand flexibility, as well as more strategic initiatives on delivery, cost assessment and funding, stock assessment and modelling.

## Existing research and guidance published by the GLA

A number of resources are available for homeowners and professionals, including the recent GLA reports on heat pump retrofit in London (2020) and on Building Renovation Passports (2021). In addition, the Retrofit Accelerator - Homes programme aims to help London boroughs and housing associations to develop energy efficiency projects at scale with technical and commercial solutions.

## National initiatives

**Policy proposals** including measures for the private rented sector (requiring EPC C by 2030) and for mortgage lenders (requiring disclosure and possibly minimum EPC ratings for the stock they lend to).

- **The Construction Leadership Council's draft National Retrofit Strategy** placing local leadership and local delivery partnerships at its heart.
- **Funding initiatives**, including the Green Homes Grant Local Authority Delivery scheme and the energy efficiency local supply chain demonstration projects (BEIS): Six across England, including Parity Projects' Ecofurb in London.

## Other relevant local initiatives and guidance

- Nottingham Deep Retrofit Energy Model
- Greater Manchester Combined Authority: People Powered Retrofit with Urbed & Carbon Coop
- UKGBC Accelerator Cities Programme, including the Retrofit Playbook.

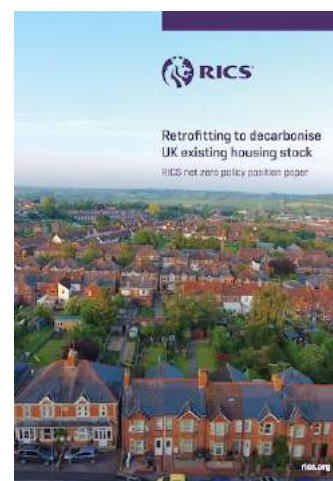
## Demonstrator projects

- **Houses:** Brent, Enfield, Lewisham, Newham, Richmond, Sutton, Wandsworth, Waltham Forest
- **Blocks of flats:** City of London, Enfield, Greenwich, Hackney, Haringey, Kensington & Chelsea, Redbridge, Richmond & Wandsworth, Sutton

## Delivery, skills, supply chain

- **Skills:** Camden's stakeholder engagement event
- **Energiesprong:** Enfield, Haringey, Sutton
- **Window manufacturing:** Newham
- **Parity Projects' Ecofurb**

*Above are examples of current initiatives on demonstrator projects and initiatives in the area of delivery, skills and supply chain by London Boroughs (as of April 2021)*



*A number of reports articulate the need and benefits of a more ambitious retrofit strategy*  
(Above left: Retrofitting to decarbonise UK existing stock, RICS, May 2020)  
(Above right: Greening our existing homes: National retrofit strategy, CLC, December 2020)



## It can be done!

The examples on this page demonstrate that retrofit has taken place successfully across a wide number of types and tenures.



*Balfron Tower, Tower Hamlets*



*Grove Road, Hounslow Homes, Hounslow*



*Edward Woods, Hammersmith and Fulham*



*Adams Row( Listed) Grosvenor, RBKC*



*Artic Street, Housing Coop, Camden*



*Ernley Close, One Manchester Housing*



*Great Arthur House, City of London*



*Wilmcote House, Plymouth City Council*



*Channel Islands Estate, Enfield*



*Princedale Rd, Octavia Housing, RBKC*



*Culford Rd, Hackney*



*Akerman Rd, Lambeth Homes*



*Bloomsbury house (listed), Camden*



## 2.0

# Key principles



This section sets out the eight key principles underpinning the Retrofit London Housing Action Plan.

A consensus on them between the 33 London local authorities and the Greater London Authority forms the foundations of the Action Plan.



# The eight key principles underpinning the action plan

## Facing in the same direction

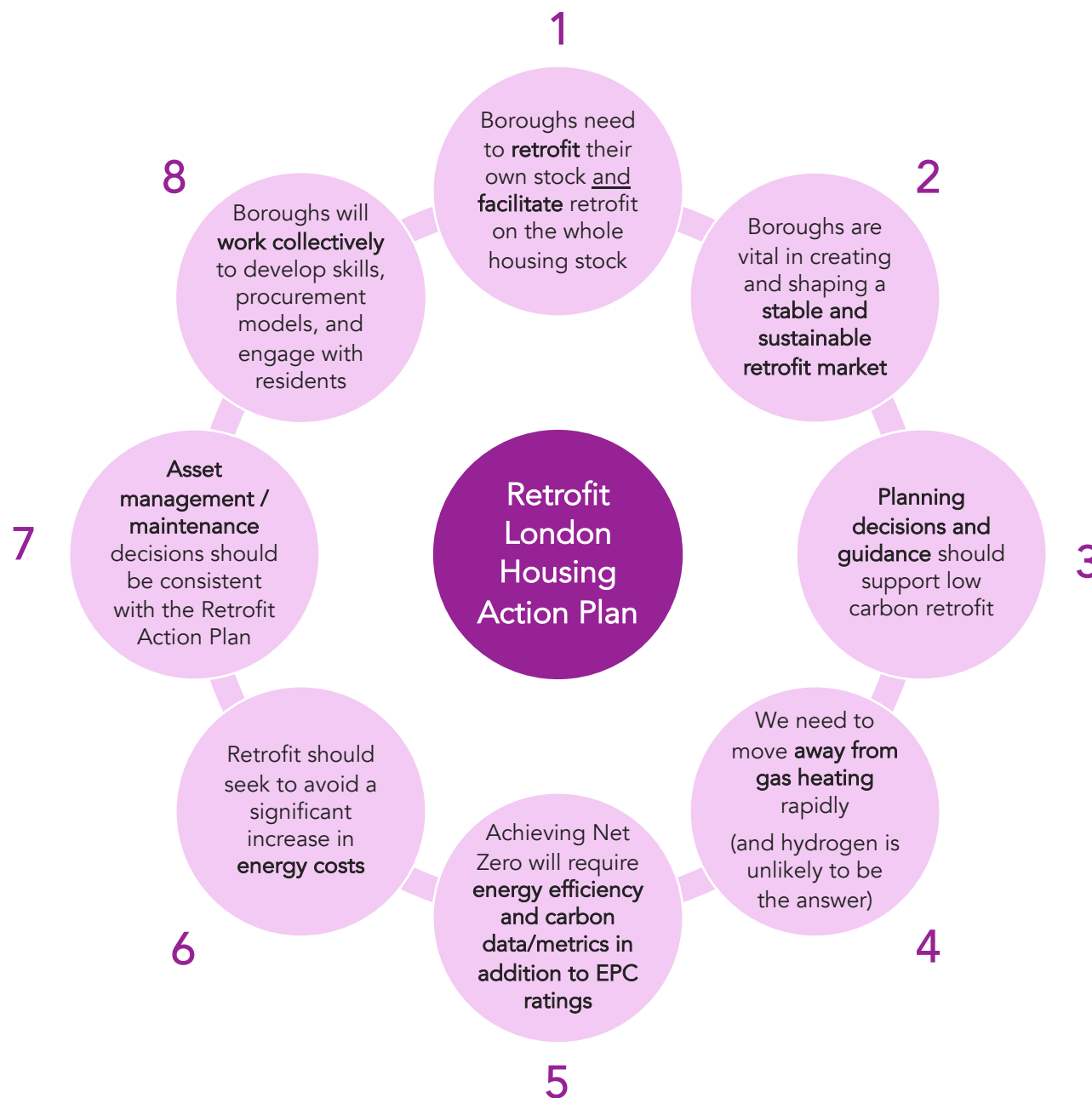
Laying the foundations for a successful collaboration between the London boroughs and their partners, including the GLA, is at the heart of this project led by London Councils.

It is important to move forward **together** and **decisively** in order to improve London's housing stock and put it on the right track to Net Zero.

The adjacent eight principles are considered essential to enable London local authorities to face in the same direction and move forward together. Some of them assume that London local authorities will receive additional funding, resources and

guidance from central government.

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## Council owned stock

Boroughs have direct influence over their own housing stock which, on average in London, represents between 0 and 20% of all homes. This direct control creates the potential to deliver mass retrofit over the coming 10 years and beyond with aims closely aligned to the principles set out within this Action Plan. London local authorities can programme low energy retrofit as part of their ongoing maintenance programmes and by setting clear, measurable milestones.

## Owner occupier sector

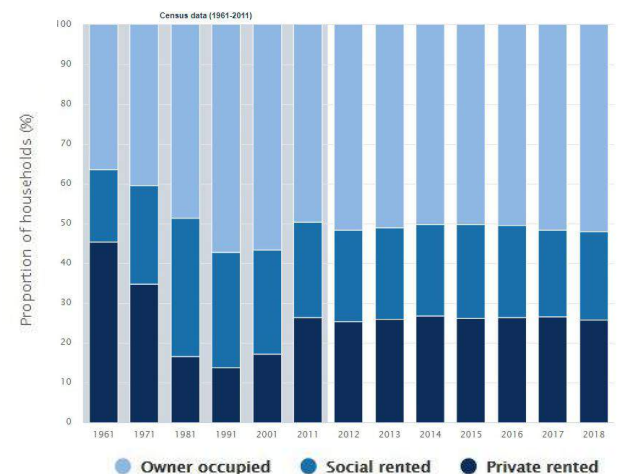
The owner occupier sector represents just over half of all homes in London. It is a very fragmented and diverse sector which include both pioneers and people with little desire or means to improve their homes. Retrofit should be seen in the context of a very large home improvement market though, with trigger points providing key opportunities for retrofit (e.g. rental, sale, change of use, extension, repair or maintenance work). London local authorities can help by raising awareness, making the planning process easier, increasing skills, providing certainty to the supply chain, helping administer retrofit programmes and facilitating access to knowledge.

## Private Rented Sector (PRS)

The private rented sector is regulated through the domestic Minimum Energy Efficiency Standard (MEES) but is challenging as low carbon retrofit offers landlords little incentive to invest further. It is an important sector from an environmental and social point of view though, due to its weight in terms of carbon emissions and because it has a larger proportion of households living in fuel poverty and sub-standard homes than in the other sectors.

## Mixed ownership

Ownership is often complicated by the distinctions of freehold and leasehold. Leaseholders within blocks or rows of terrace houses can significantly affect the ability to roll out retrofit. For private homeowners who are leaseholders, the terms of their lease may be a barrier to retrofit.



The bar chart above shows the relative proportions of dwelling tenures across London. While this has varied over time, the ratio has been stable for a number of years. Owner occupiers are the dominant category at a little over 50%. The private rented sector is next and the social rented sector is a close third (Source [Housing tenure over time | Trust for London](#))



The UK's first Energiesprong project in Nottingham is an example to follow but it also highlights the problem which leasehold tenure can present in retrofit projects, undermining both the technical and architectural ambition here. For multistorey schemes, leaseholders can potentially block entire projects especially where the planned improvements are reliant on external re-cladding (© Mellus Homes).



## 2 Boroughs are vital in creating and shaping a stable and sustainable retrofit market

### Known and trusted by local residents

The London local authorities are one of the few organisations that are known to all residents in the area, irrespective of tenure. Councils have opportunities to communicate directly with households, landlords and social providers and will have a central role to play in shaping the retrofit market in London.

Although levels of trust in Councils as a whole varies by community and location, Councils also represent trusted organisations and brands. Therefore information and guidance provided by the Council on home advice could be more trusted than from other sources.

### Data and insights on local context and building stock

Councils have an intimate knowledge of local social and building context. This gives a solid foundation for planning an intelligent retrofit strategy across housing in the area which is relevant to local people's lives.

### Control over policy and local planning

Through the planning process and other policy levers London local authorities are, to an extent, able to incentivise and even mandate upgrades to housing. Although powers are limited this is an important part of encouraging retrofit.

### A consistency and scale to steady the market

In the wake of the Green Deal, Green Homes Grant and lack of long term central government policy the retrofit market is very unstable. Councils are already a huge building renovation and maintenance customer, and can be a buffer for local trades and consumers by providing a consistent demand and clear requirements. There is a risk that the supply chain can represent a bottleneck and limit the ability to deliver retrofit in the short to medium term. Providing certainty that there is a sustainable retrofit market is a must for the supply chain to develop and London local authorities can play an important role in this.



3,781,477 properties

33 boroughs



### Working together across London and sharing expertise

There are significant opportunities for building conservation and climate change officers to work together to make sure that conservation and climate change can go hand in hand and that planning does not constitute an additional hurdle to well considered proposals. It would be particularly helpful if better guidance could be created for conservation areas that actively supported sympathetic retrofit measures.

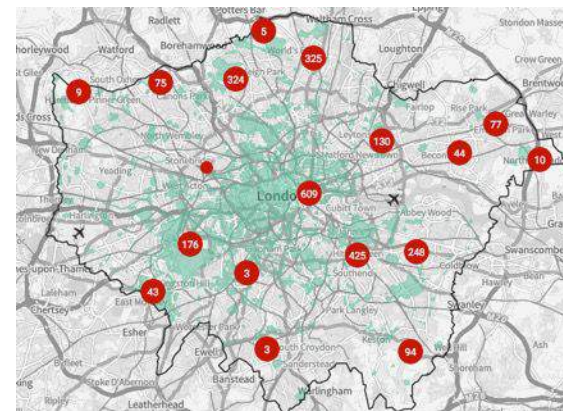
### Conservation of heritage and the planet

Greater London includes over 1,000 conservation areas and approximately 17% of all homes in London are in a conservation area. In some boroughs they represent the majority of the housing stock. They have to be addressed in order for these boroughs and London as a whole to achieve their climate ambitions.

Retrofit work to historic buildings needs to be done with particular care and skills. This was stated in the Sustainable Traditional Buildings Alliance's Responsible Retrofit Guide and this principle has been adopted with the PAS 2035. Historic England's Heritage Counts 2019 and 2020 papers acknowledge the importance of retrofit within the world of conservation. Buildings need to be preserved from harm, not from change altogether.

There is significant potential for conservation of heritage assets to work in harmony with efforts to mitigate climate change. In particular:

- Retrofit is often part of a wider programme of repairs and upgrading, which increases the value and functionality of a building, making it more likely to remain valuable and well looked-after in the future.
- Low-energy retrofit does not only have energy, carbon and comfort benefits, it also limits the risk of under-heating by occupants worried about energy bills, and the associated risks of fabric degradation.
- Excessive restrictions may lead to 'rogue' works carried out without any regulatory oversight, with worse consequences to the asset.



Conservation areas (green) and listed buildings (numbers in red) represent a significant proportion of the London housing stock, particularly in the inner boroughs. They cannot be ignored if London is to meet its climate objectives. (© London Datastore)



There is a growing library of resources for responsible retrofit of traditional and historic buildings, including the above Sustainable Traditional Buildings Alliance (STBA) and Historic England guidance



### Cumulative carbon is key

The Climate Change Committee (CCC) have been very clear that the use of fossil fuels must be eliminated in virtually all buildings by 2050 to achieve the legal obligation of Net Zero for the UK.

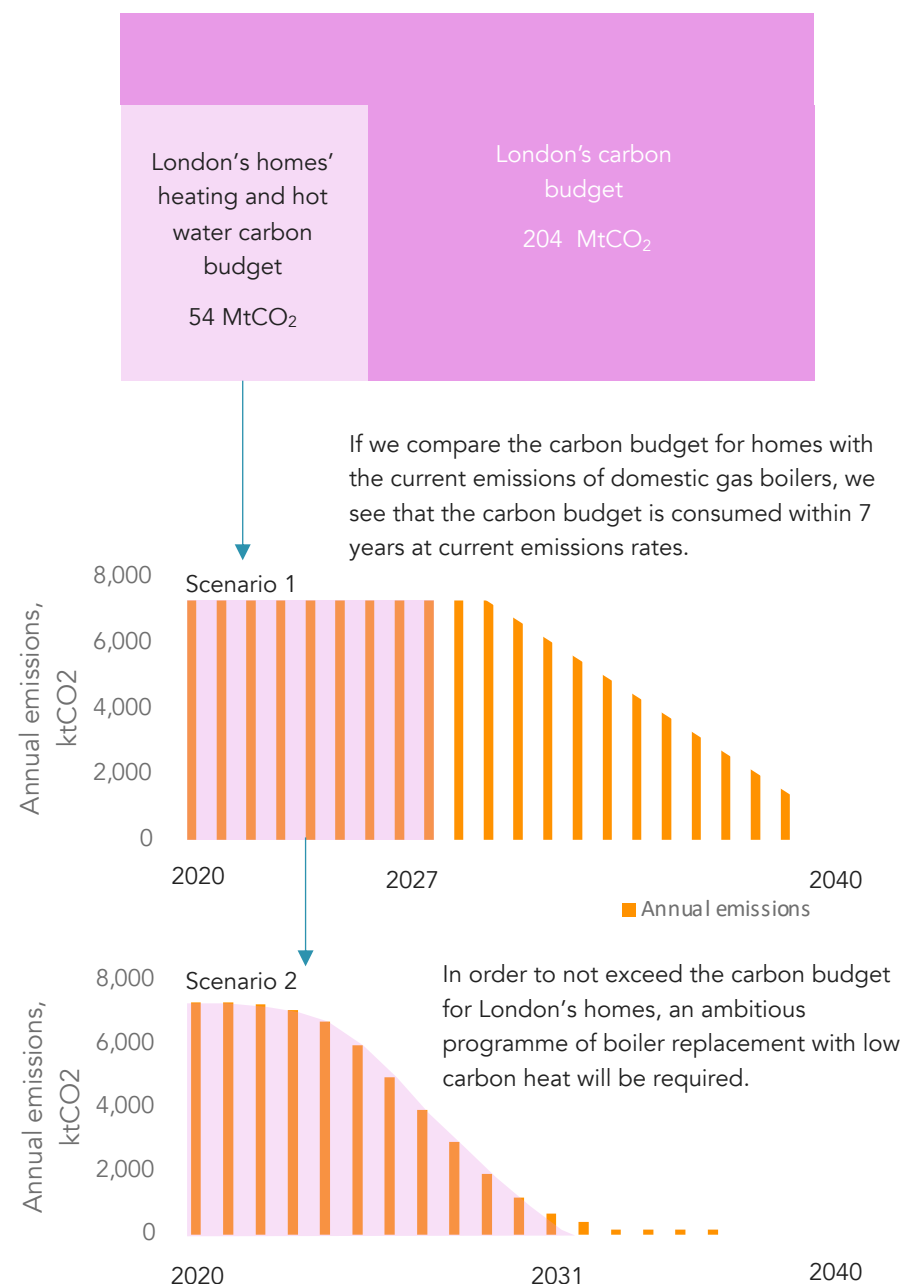
If we are also to meet our obligations under the Paris Agreement in limiting global temperature rises to no more than 2°C, a carbon budget approach helps to understand the impacts of the pace of change between now and 2050. They take into account the effect of cumulative CO<sub>2</sub> emissions in the atmosphere. The Tyndall Centre for Climate Change has taken a Paris aligned global carbon budget and used it to derive a carbon budget for the UK and all the Local Authorities within it. According to this analysis, London's remaining carbon budget is 204 MtCO<sub>2</sub>, and meeting the budget must not rely on carbon offsets.

### Carbon budgets for London's homes

We have used London's carbon budget to derive a carbon budget specifically for heating and hot water for London's homes which we estimate at 54 MtCO<sub>2</sub>. This helps us understand the impact gas boilers in existing homes are having on achieving carbon budget targets.

We know that in 2019, gas boilers in London's homes emitted 7.3 MtCO<sub>2</sub>. The graphs on the right show annual emissions in orange, and cumulative emissions equal to 54 MtCO<sub>2</sub> in the pink shaded area. We can see in scenario 1 that if no action is taken to remove gas boilers and replace them with low carbon heating until 2030, all the carbon budget for heating homes will be consumed by 2027. On this pathway, homes are practically zero carbon by 2040, but they have exceeded their carbon budget by more than 100%. This pathway is therefore not Paris compliant.

Scenario 2 shows a gradual but highly ambitious programme of boiler replacement. This could enable the carbon budget to be met, but virtually all boilers in existing homes would need to be removed by the early 2030s.





## ... and hydrogen is unlikely to be the answer

### A growing consensus

Our team analysed recent publications relevant to the potential role of hydrogen in heating homes in the future and discussed it with several experts in energy and buildings. The growing consensus is that hydrogen is unlikely to play a significant role in the short to medium term (if at all) for this purpose. It is an important issue, as a strategy relying on hydrogen could prove to be flawed when it is already too late to switch to other solutions. It would therefore be a risky decision for London local authorities which may prevent them from achieving their climate change obligations.

### Costs will be (very) high

Re-using the existing gas grid network into and within London and turning it into a 100% hydrogen network is not possible without major upgrades. The costs of this combined with hydrogen generation costs and the replacement of all gas appliances into hydrogen-ready ones will be very significant. It is unclear why private investors or the Government would finance this major undertaking when renewable electricity distribution appears comparatively much more attractive and less risky.

### The Climate Change Committee view

The Committee on Climate Change sees a limited role for hydrogen where 'electrification reaches the limits of feasibility and cost-effectiveness'. In practice, this is likely to mean industrial heat, top up heating for some buildings on very cold days, back-up power generation and heavy-duty vehicles. This view is based on a maximum practical capacity to produce up to 44TWh of hydrogen a year by 2050, less than 10% of current gas consumption in buildings.



*A number of independent reports suggest that hydrogen is likely to have a very limited role (if any at all) to heat our homes (the above examples are from the Fraunhofer Institute, the International Energy Agency and LETI)*



## 'Blue hydrogen' is unproven and not carbon neutral

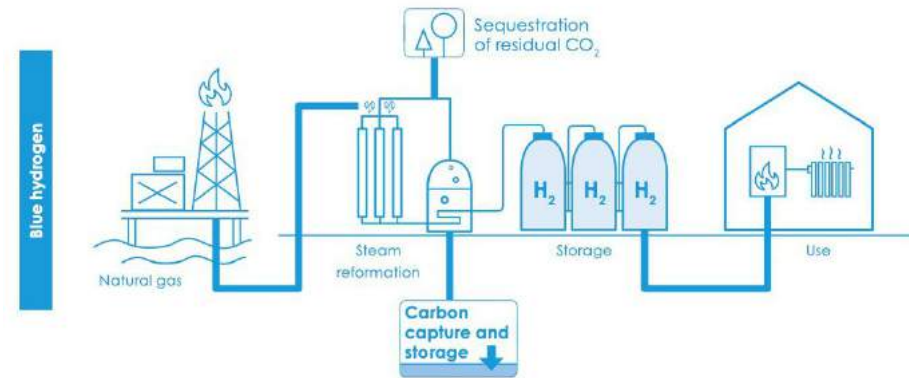
Hydrogen is currently produced via four methods, three of which require a fossil fuel feedstock to create 'blue hydrogen' with inherently high emissions. Carbon capture and storage (CCS) is therefore required to reduce emissions (60-85% relative to using natural gas) but economically viable CCS at scale for this purpose is unproven.

## Heat pumps are 5 times more efficient than 'Green hydrogen'

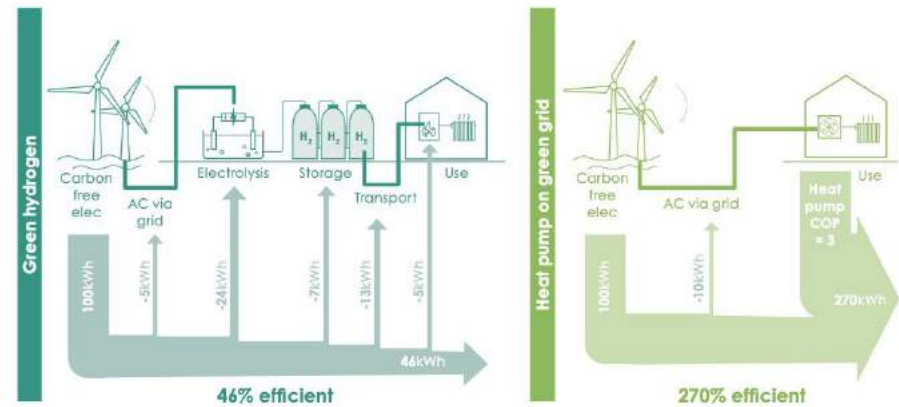
'Green hydrogen', produced via electrolysis powered by very low carbon sources of electricity such as renewables and nuclear, offers a more plausible route to create genuinely low carbon hydrogen. However, it is more efficient to use electricity directly for heating and hot water instead of turning it into hydrogen and burning it in boilers. Using renewable electricity to power heat pumps is 5 times more efficient. Using electricity directly (or via heat pumps) is also safer with no risk of explosion.

## Safety concerns

Hydrogen is more flammable, has a faster flame rate and burns hotter than natural gas. The first two make it more risky in terms of accidental explosion, especially if it is used in cooking hobs and the last means the flame is generally invisible in daylight so, again in cooking applications, more likely to cause accidents. The smaller molecule size means it is also more likely than natural gas to leak from normal pipework, including through valve seats. More explosions and burn accidents are likely if we switch to hydrogen. Electricity would be much safer.



'Blue hydrogen' is produced from fossil fuels. Carbon capture and storage (CCS), yet unproven at scale, is then required to reduce emissions (© LETI)



Heat pumps are a much more efficient way to use electricity generated by renewables than 'green hydrogen' (© LETI)



## The EPC rating is not the right metric for climate change

There are several reasons:

- **It is an energy cost indicator:** the current A to G ratings and the associated SAP scores are **energy cost** indicators, not energy use or carbon indicators.
- **The recommendations to improve an EPC rating can be misleading:** The continued use of gas boilers is incentivised with a system based on the improvement of an EPC rating, as gas remains cheaper than electricity despite now being a higher carbon energy source.
- **It does not cover all energy uses by the home:** EPCs only cover part of the dwelling energy use (i.e. the 'regulated' part) and therefore do not form the 'whole picture' of home

**It cannot be measured:** an EPC rating cannot be checked by the home/building owner or local authority against in-use energy.

**It is not accurate:** studies indicate a relatively small difference in actual energy use between different EPC ratings, suggesting that bringing all homes to a particular EPC rating may actually achieve little in practice.

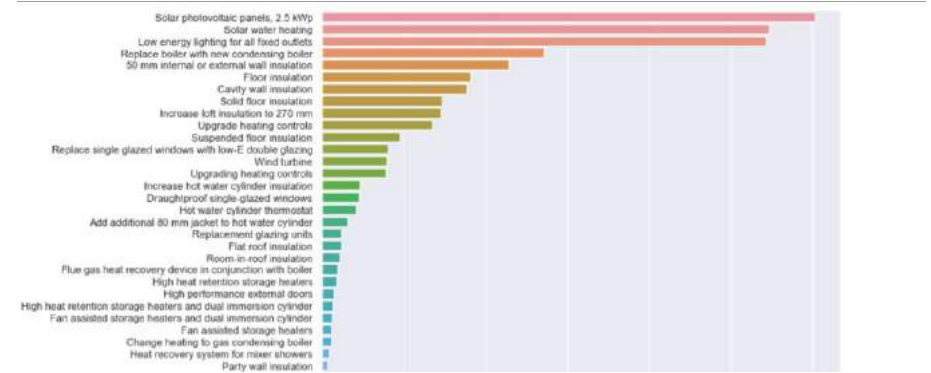
## We recommend the following additional metrics

These metrics are already collected and/or can be readily calculated:

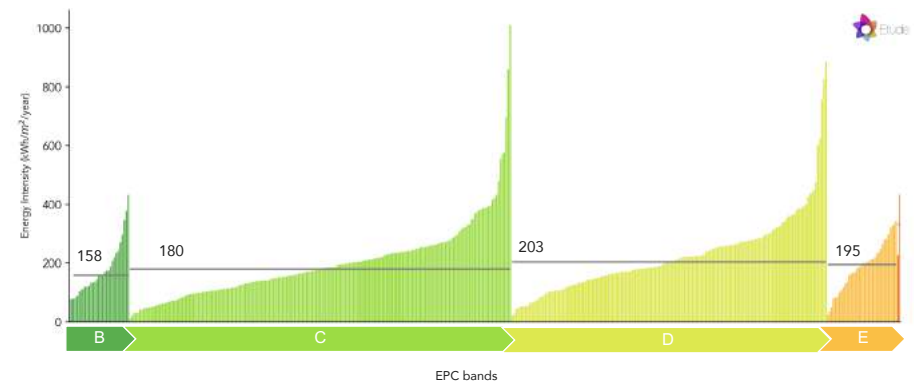
**Carbon emissions** in kgCO<sub>2</sub>/m<sup>2</sup>/yr. If Net Zero carbon is a key objective, a carbon indicator is required which takes into account the carbon impact of all home energy uses and the need to transition away from gas and other fossil fuels. This should be based on long-term carbon factors (e.g. 2038).

**Space heating demand** in kWh/m<sup>2</sup>/yr. Heat demand is a major challenge in existing homes and a key opportunity in terms of retrofit. It is an energy efficiency indicator and also links to comfort, health and wellbeing.

**Total energy use** (Energy Use Intensity - EUI) in kWh/m<sup>2</sup>/yr. This is independent from changes to the energy system and prices, is easy to understand for consumers, enables a direct feedback loop from metering, and allows comparisons between dwellings.



**Analysis of recommendations on all EPC certificates in the UK:** this clearly illustrates that the current system is not fit for purpose to put the existing housing stock on the right track towards Net Zero. For example, the installation of a heat pump is never recommended, which is partially due to the current nature of the EPC rating: a cost indicator rather than an energy efficiency or carbon metric (Source: UCL)



### Distribution of metered energy use from 420 dwellings in London

This analysis of actual energy used in homes shows that improved EPC ratings are associated with some reduction in average energy use, but a limited one. For example, there is only a 22% reduction in total average energy use intensity from D- to B-ratings.

The mean total energy use\* in EPC band A is 161kWh/m<sup>2</sup>/yr, which is very high.



### Changing to low carbon heat is an urgent priority

In the UK, electricity per unit currently costs, on average, significantly more than mains natural gas so the shift to low carbon heat could potentially create an overall increase in energy bills for most residents in existing homes. Energy bills can form a substantial part of household expenditure, it is therefore critical that the move away from fossil fuels is managed with particular consideration for low-income families.

In order to enable an early switch to low carbon heat sources, there should be a clear focus on reducing energy demand, especially in low-income homes and specifically to the extent that the switch to a low carbon heat source will not substantially increase annual fuel bills.

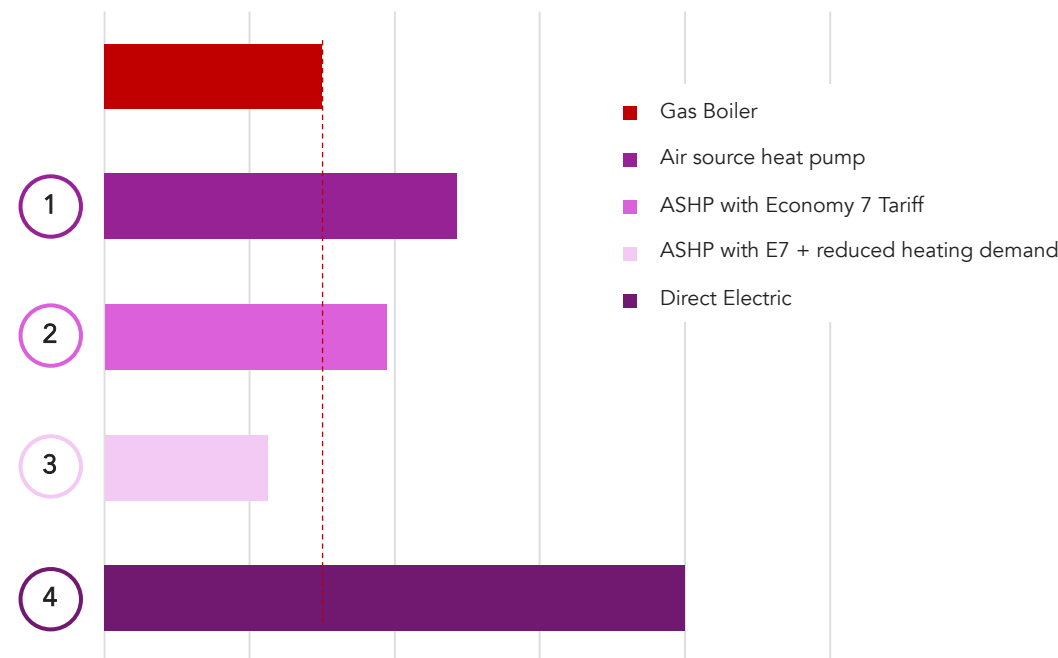
### Minimising disruption to residents

Low carbon heat sources such as heat pumps work at lower operating temperatures than gas boilers, so in some cases (not all) the radiators may not be large enough to keep the rooms warm on the coldest days. If all the radiators or even pipework in homes have to be replaced, the cost of the work and the disruption to residents will be far greater than simply swapping over the heat source.

In order to enable an early switch to low carbon heat sources, improvements to the fabric of homes need to be carried out for these homes to reduce the peak heating demand sufficiently to avoid the need for major changes to the installed heating emitters, and a whole house approach is important and helps to enable this.

### Access to Time of Use (ToU) electricity tariffs

The cost of electricity is variable, far more so than the cost of mains gas for domestic customers. The lowest cost tariffs can greatly reduce the margin of difference between gas and electric heating costs, but these are generally only available to consumers who have smart meters. Therefore, the roll out of smart meters across London is a key facilitator for low carbon retrofit.



*Indicative annual energy cost for an average home in London (82m<sup>2</sup>) based on an existing space heating demand (assumed to be approx. 160 kWh/m<sup>2</sup>/yr)*

1. With high existing space heating demands, a direct swap from a gas boiler to an ASHP leads to a relatively poor efficiency for the heat pump and consequently an increase in annual running costs (assumes a coefficient of performance (COP) for heat pump of 1.7)
2. Changing the fuel tariff without improving the fabric to a minimum helps to reduce heating costs but is not sufficient to reduce costs below those of the current gas boiler (assumes COP for heat pump of 1.7)
3. Reducing the space heating demand to around 100 kWh/m<sup>2</sup>/year reduces fuel consumption and improves the efficiency of the heat pump in operation (assumes COP for heat pump of 2.0)
4. Direct electric space heating will only be realistic where substantial fabric improvements are possible or fuel cost subsidies can be paid to residents



### Maintenance and replacement will create opportunities

Routine maintenance will create natural trigger points to implement elements from the Retrofit London Housing Action Plan (e.g. change of heating system due to the existing system reaching the end of its life, internal insulation and ventilation works made easier for a void property etc.). It is particularly important to seek synergies between this Action Plan and the current maintenance and replacement programmes in order to make the most of these opportunities and minimise disruption for the residents. This would also greatly help to minimise costs as they would only represent incremental costs. This Action Plan is doomed to fail if it is not integrated and is instead seen as a separate set of requirements.

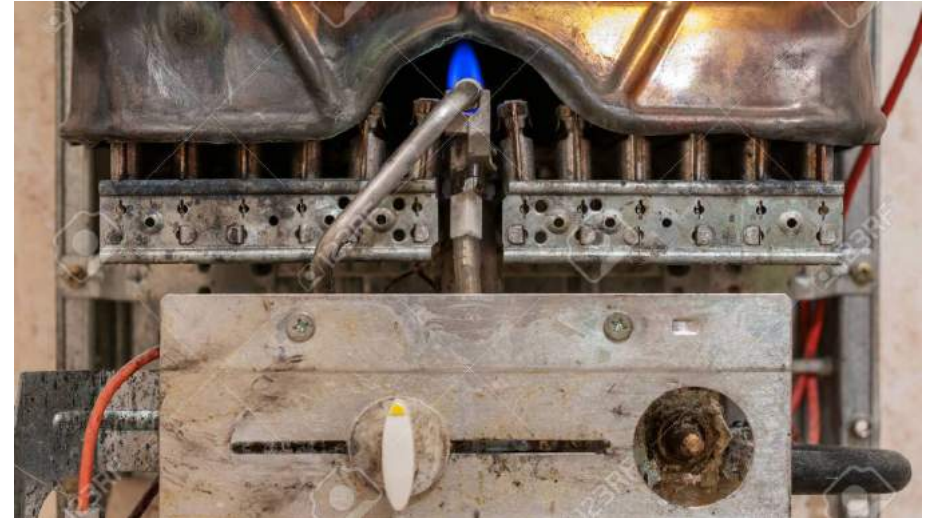
### Review existing maintenance budgets now

Management and maintenance budgets should be reviewed and need to align with the Retrofit London Housing Action Plan, to ensure existing planned works do not lead to repeated costs.

Work going forward should ideally be compliant with this Action Plan and, more fundamentally, not do things which add to the problem. For example, gas boilers are not compliant with a Net Zero pathway and should now be replaced with low carbon heating systems generation and not gas boilers, which would lead to new retrofit costs in the future to meet the Net Zero carbon target.

### Cost uplift

In order not to artificially inflate the cost of retrofit, it is useful to consider some of them as a simple cost uplift and measured above existing budgets for routine management, maintenance and replacement work. For example, re-rendering a wall or building safety works is an ideal time to apply external insulation and would mean the actual extra costs are just the additional insulation material and labour to secure the insulation to the wall.



*A number of gas boilers are coming to the end of their lives each year and their replacements are already covered by long term replacement and maintenance plans. We recommend a review of these plans and budgets in favour of low carbon heat.*



*Scaffolding is a large part of the cost for replacing glazing. By including window upgrades as part of routine maintenance and upgrade work, costs can be minimized.*



The 33 London local authorities are all different from one another. However, in the context of the retrofit challenge across London, those differences are relatively small compared to what they have in common and most importantly a stock of housing with strong similarities. Our engagement workshops with different boroughs confirmed the fantastic opportunities for collaboration to minimise complexity, risks and costs.

## A shared desire to learn

London local authorities have been undertaking retrofit for a long time and a large number of them are very experienced in particular programmes (e.g. external wall insulation). Others should capitalise on this knowledge instead of going through the same learning curve. Heat pumps represent a new area which would benefit from shared knowledge and experience.

## Page 164 Opportunities for collaboration and efficiency

In order to achieve the retrofit objectives of this Action Plan a number of new activities need to be developed, from the aggregation of demand to communication activities with residents. Collaboration would not only make these tasks easier, it would also make it much more efficient if one London borough was to take the lead, assisted by a few others but for the benefit of all. At a time of pressure on resources, this would be helpful.

## The need for joint advocacy

London local authorities and the GLA need help from the Government: articulating their common needs increases the chance of them being heard and securing additional resources, funding and support.

## Collaboration with the wider eco system

Transition networks, NGOs, building professionals (architects, engineers, builders, suppliers) and the finance community all have a role to play to meet the retrofit challenge. Working together, including in innovative ways, is our best chance of solving the climate crisis.



A lot of exemplar retrofits already exist across London. There is every reason for London local authorities to learn from them (and from new ones) together instead of each doing their own demonstrator project.



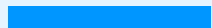
Engaging with Londoners, and in particular with local community and transition groups is essential to engage with other types of tenure, and particularly home owners. The example above is the pop-up space created by Camden Council which hosted a large number of events over a 6-week period on the climate emergency. This included events on retrofit.



# 3.0

What should be done:

## Retrofit measures and plans



- Lessons learnt
- Key retrofitting measures
- Mapping out each building's retrofit journey
- Key archetypes
- Whole house renovation plan templates



# Summary of recommended actions in this area

The key recommended actions and activities in terms of **retrofit measures and plans** are listed in the adjacent table.

Each action/activity is explained succinctly in the following pages.

The full list of actions and activities is provided in a separate spreadsheet which London Councils can develop and add to when this phase of the project has been completed.

## Retrofit measures and plans

### 1 Improve the building fabric of London's inefficient homes

Activity 1.1 > Analyse current characteristics and levels of energy efficiency of the housing stock

Activity 1.2 > Set an energy efficiency target for each home

Activity 1.3 > Enable windows upgrades and no more single glazing in London by 2030

Activity 1.4 > Drive better External Wall Insulation (EWI)

Activity 1.5 > Reach a London wide consensus on acceptable Internal Wall Insulation (IWI) solutions

### 2 Develop a plan for retrofitting ventilation systems to improve health and air quality

### 3 Electrify heat

Activity 3.1 > Undertake a stock analysis of heating systems

Activity 3.2 > Establish the most appropriate future low carbon heating system for each home

Activity 3.3 > Stop the replacement of gas boilers with gas boilers

Activity 3.4 > Enable a heat pump roll out at scale

Activity 3.5 > Develop clear guidelines/requirements to 'get heat pumps right'

Activity 3.6 > Review the carbon impact of heat networks and focus on sustainable connections

Activity 3.7 > Develop a specific strategy for buildings heated by direct electric

Activity 3.8 > Work with District Network Operators and utility providers on electrification of heat

### 4 Deliver smart meters and demand flexibility (controls, storage) in retrofitted homes

### 5 Increase solar energy generation on London homes

### 6 Map out each building's journey towards lower energy costs and Net Zero

Activity 6.1 > Develop whole house retrofit plan templates for key building archetypes



# What are the key home retrofit measures?

## Energy efficiency improvements

The existing London housing stock is amongst the least efficient in Europe. Improving the fabric by changing single glazed windows to double or triple glazed ones, insulating walls, roofs and ideally floors, reducing unwanted air leakage and retrofitting Mechanical Ventilation with Heat Recovery (MVHR) are the key measures to reduce space heating demand and improve energy efficiency. The level to which these measures should be implemented (i.e. shallow or deep retrofit) depends on:

- the **opportunities**: whether it is technically easy or challenging (including conservation constraints)
- the **level of improvement required to avoid a significant increase in heating costs with the switch to low carbon heat**.

## Low carbon heat and no more fossil fuels


The main objective of the Retrofit London Housing Action Plan should be to accelerate the move away from gas boilers towards heating systems using electricity. Heat pumps should be the priority as they use electricity efficiently to generate heat but direct electric heating and hot water may be acceptable in a very efficient home. Hybrid solutions with a mixture of direct electric and heat pumps are also possible. Households not served by mains gas should remain off-gas (with funding for other measures). Heat networks may have a role to play but they will have to provide a sustainable source of low carbon heat with a Net Zero compliant plan.

## Demand flexibility for a smarter London electrical system

Energy storage (e.g. hot water tank) and smart controls will play an important role in integrating homes into the wider energy system.

## Solar PVs

We need to increase solar energy generated in London to reduce carbon emissions and balance energy use. Many homes have a significant roof space and residents can directly benefit from this electricity.

Category	Measure
 <b>Energy efficiency</b>	Double or triple-glazed windows Insulation (wall, roof, floor) Airtightness Ventilation (e.g. MVHR)
 <b>Low carbon heat and no more fossil fuels</b>	Individual heat pumps Communal heat pumps Low carbon heat networks Direct electric
 <b>Demand flexibility</b>	Energy storage Smart energy controls
 <b>Renewable energy generation</b>	Solar PVs

Summary of key retrofitting measures which the London Home Retrofit Action Plan should seek to deliver



# What did we learn in the last 30 years?

## The importance of whole house thinking

Early retrofit projects tended to focus on single measures driven by funding opportunities. Projects often lacked any strategic and building specific design input and there was no evaluation at the end of the process. The results were often undermined by unintended consequences and there was no feedback loop for developing better practice.

Following the Each Home Counts review it was recognised that successful retrofit relies on a structured process including adequate assessment, design, installation and monitoring to feed back into future work.

These principles as well as the idea of whole house thinking and the role of retrofit coordinators have fed into the creation of PAS (Publicly Available Specification) 2035, the UK's first retrofit standard. Adopting PAS 2035 on projects adds some costs but also, very importantly, value and quality. It is generally a requirement of central government funded projects.

The diagram alongside illustrates a more mature approach to retrofit where design and post installation learning are built in.

## How far do we go with energy efficiency?

Opinion has varied on how far to go. Schemes like Green Deal set no metric but used 'pay back rules' which tended to undermine whole house thinking and quality. Standards such as EnerPhit may be too rigid and may also risk leading to very high cost.

A consensus is now emerging that whole house plans en-masse should lead to a medium space heat demand (on average) alongside the electrification of heat. These are considered the two key objectives for reducing carbon emissions associated with homes.

This Action Plan has aimed for a 'sweet spot' in terms of a space heating demand of 65 kWhr/m<sup>2</sup>.yr on average as a way of optimising risk and cost. We envisage a bandwidth of 20-120 kWhr/m<sup>2</sup>/yr (depending on the building type and its retrofit constraints) within which homes should be encouraged to go as far as possible while avoiding technical risks.

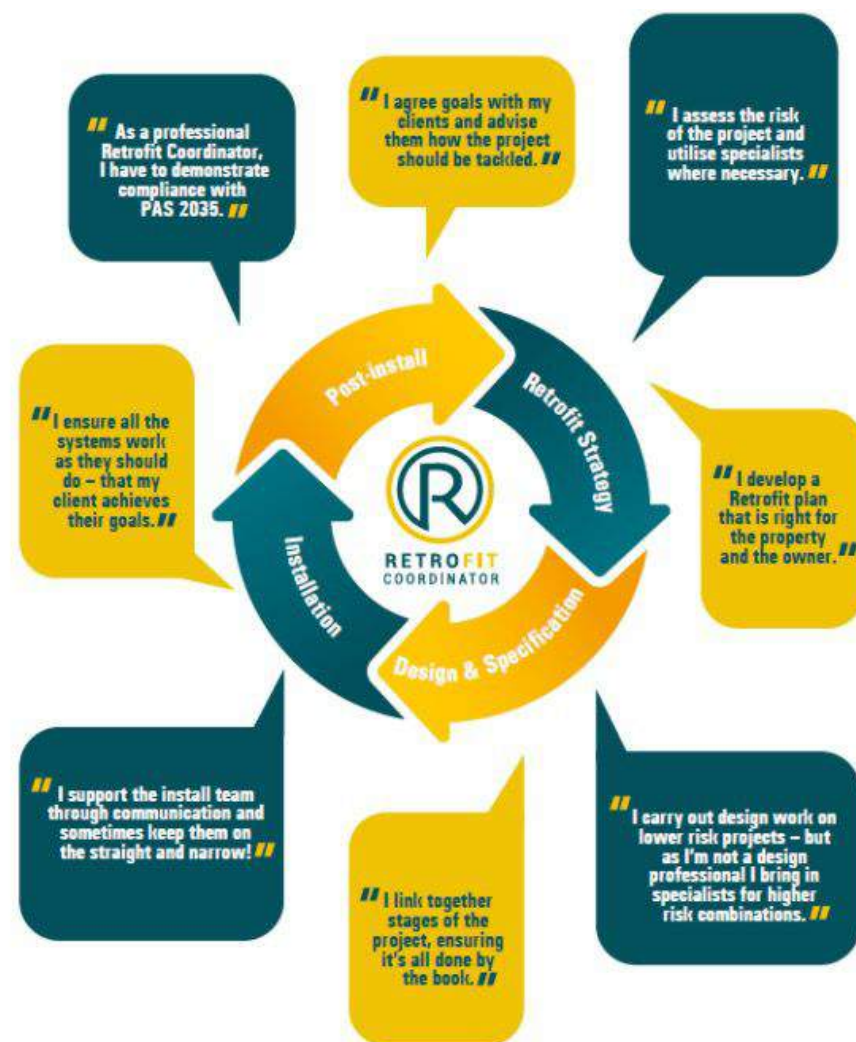


Diagram from Retrofit Academy training showing how the retrofit process should work and how retrofit coordinators should help facilitate this.



## Action 1 Improve the building fabric of London's inefficient homes

Parity Projects' Pathway report for London Councils summarises their data analysis for London's 3.78 million homes spread across 33 boroughs. The interim target assumes that 50% of these will receive fabric measures and the Net Zero target will require fabric measures to 100% of homes.

### Fabric efficiency

As heating demand represents over 60% of the energy use within UK homes, intervening with the building fabric to reduce this has been long recognised as an essential means of reducing energy use and the resultant carbon emissions. London's housing stock (like that across the UK) tends to be relatively old and therefore typically lacks high levels of insulation and air tightness.

Parity Projects have concluded that the average SAP score for London homes is around 63 and the table alongside from their report shows the distribution of EPC bands where C, D and E dominate. The interim target aims to achieve an average EPC rating of B. The graphs indicate the scale challenge in reaching that target.

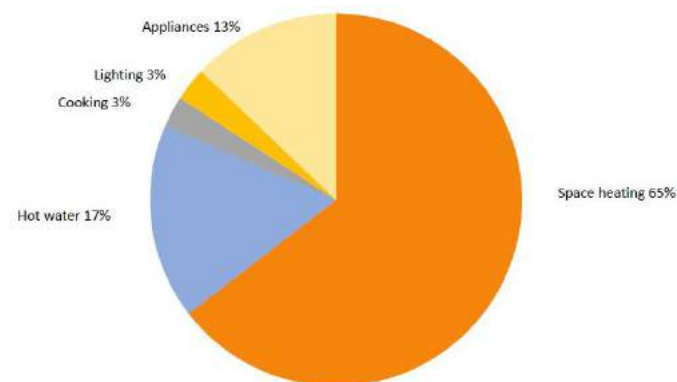
### Space heating metric

One of the findings from the workshops held during this project was that EPC ratings have a limited value with regard to expressing fabric efficiency.

Parity Projects have therefore used an average space heating target of 65 kWh/m<sup>2</sup>/yr as a target (for 30% of homes) as a means of reaching EPC B average (interim target). This target is less than half of the current inferred average space heating demand of between 130 and 150 kWh/m<sup>2</sup>/yr and clearly demonstrates the step change needed in fabric efficiency.

We recommend that, alongside EPC ratings, space heating demand is used as a more suitable measure for fabric efficiency. The target of 65 kWh/m<sup>2</sup>/yr may provide a useful average target.

The following pages summarise the recommended activities to achieve it.



*This pie chart illustrates the relative energy use within the UK housing stock in 2019. Heating is the dominant element and needs to be reduced significantly*

(Source: ECUK table U3)



*This table shows the EPC scores of London homes at present. Note the very low number of homes EPC B or better, and the large numbers of C,D and E rated properties.*

Source: Parity Projects London Councils Pathway Report



*This table shows the current performance of London's existing housing stock across key KPIs*

Source: Parity Projects London Councils Pathway Report



Each borough needs to review its own stock in greater detail and evaluate the current levels of fabric efficiency and how they can be improved. The Parity Projects report gives a breakdown of the number of homes that have specific characteristics, such as cavity wall insulation or single glazed windows. The model also provides a breakdown of those property characteristics by tenure. Using this data will allow London local authorities to understand the types of work most widely required in the area by tenure type, so plans can be put in place, for example to replace single glazing in all socially rented homes by a defined date.

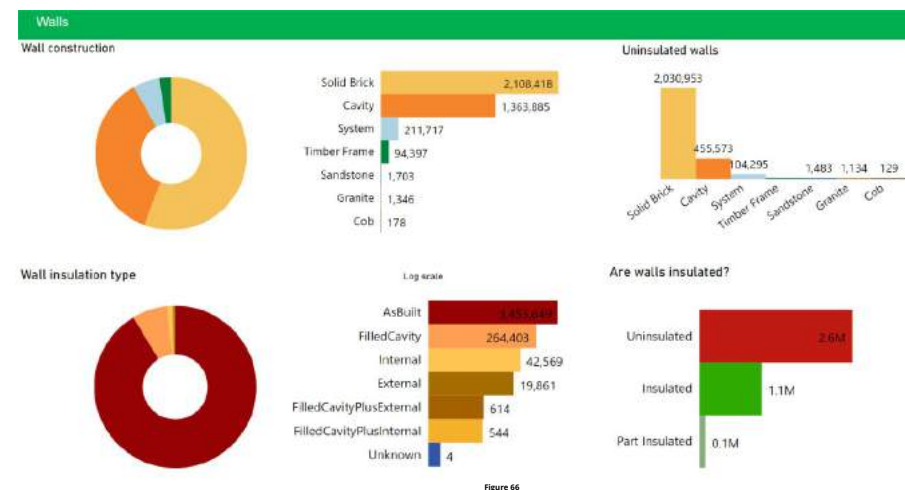
### Considering borough specific opportunities and constraints

Each borough has particular constraints and opportunities which should be evaluated alongside the fabric characteristics.

For example, in an area where homes with single glazing are predominantly in buildings with high conservation status, the work required to replace the windows is likely to take longer and cost more. In another area with most homes of relatively modern construction, a strategy for the roll out of External Wall Insulation will be easier to develop.

### Towards a Retrofit Action Plan for each Borough

Using BEIS data on energy consumption by postcode together with council tax records for average home sizes, it will be possible to see where the worst performing homes are relative to the general target of 65kWh/m<sup>2</sup>/yr space heating demand and with local knowledge of the stock analysis of fabric characteristic, local constraints and opportunities, form a priority plan for the type of work needed.



Breakdowns of specific property characteristics.

(Source: Parity Projects' Pathways report for London Councils)

Postcode	No. of meters	Consumption (kWh)	Mean Consumption (kWh)	Median Consumption (kWh)
W3 6HF	41	615302.7	15007.38	12097.92
W3 6HG	11	161583.6	14689.42	16655.79
W3 6HH	21	417876.4	19898.87	18794.26
W3 6HJ	8	183917.9	22989.74	18248.27
W3 6HL	5	170695.4	34139.07	25512.36
W3 6HN	36	767059.3	21307.2	20439.17
W3 6HP	17	357622.2	21036.6	17264.09
W3 6HR	42	954442.1	22724.81	20719.09
W3 6HT	5	45115.73	9023.145	9839.763

BEIS have begun to publish energy consumption data by postcode (see. extract above). This data can be cross referred to council tax and other records for each postcode to establish an approximate rate of energy consumption per m<sup>2</sup>. Comparison of these figures will provide an indication of the average performance of homes and fuel poverty risks.



## Action 1 Activity 1.2 > Set an energy efficiency target for each home

### Setting an average space heating demand target

The modelling that Parity Projects have carried out was based on an average target space heating demand of 65 kWh/m<sup>2</sup>/yr, which is around half the current average. Further stock review by boroughs proposed in activity 1.1 will help each establish more clearly how energy efficiency, decarbonisation of heat and renewable energy can be woven together optimally to achieve Net Zero in the long run. Reductions in any one of these categories will need to be met by increases in others.

As heating dominates the energy consumption in the domestic sector, setting an energy efficiency target at a city and borough wide level will help inform high level strategic thinking as well as house by house retrofit

Influencing factors which will affect fabric efficiency targets are:

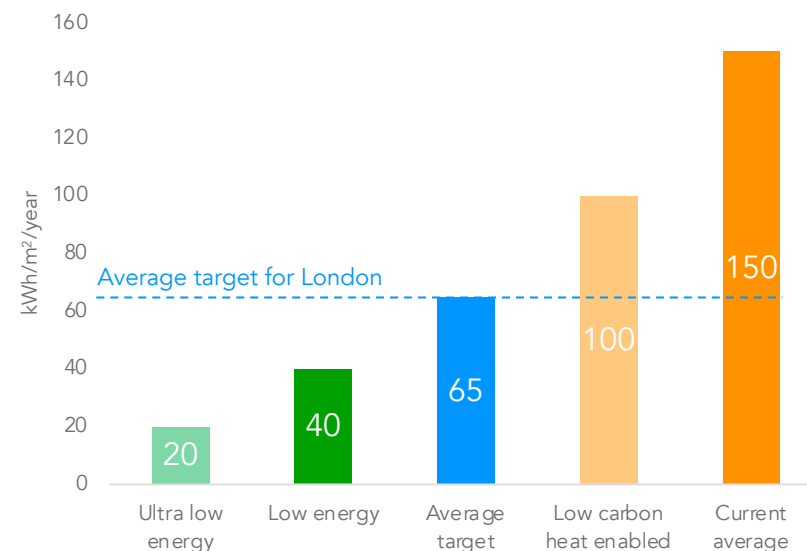
1. Planning considerations/restrictions
2. Managing technical risks such as moisture
3. Economics constraints
4. Approach to decarbonising of heat

### Setting a target for each home

As well as deciding on an average space heating target, boroughs should consider that there will be a 'bandwidth' around this average, where some homes fall short and others can exceed the target.

For some homes such as detached properties that also have technical or heritage constraints, achieving the 65 kWh/m<sup>2</sup>/yr target will be challenging. For others, such as flats with fewer constraints on fabric options, it will be possible to get well below 65 kWh/m<sup>2</sup>/yr.

It will be important for boroughs to take advantage of the potential for doing better where possible in order to achieve the target on average. Otherwise there is a danger that the average target becomes the aspiration and that more homes fall short than exceed this aim. Retrofit works are also generally disruptive and expensive, it makes sense to take all opportunities when works are carried out, to maximise the added value from the works and to limit additional disruption and costs in the future.



**A key measure of building fabric performance is the overall space heating demand.**

Lower space heating demand reduces the energy required and also facilitates the use of low carbon heat systems.



To maximise the value of retrofit, for residents and at the system level, it makes sense to maximise the opportunities created by the works by 1) producing a plan for the home to achieve Net Zero 2) ensuring works allow heat decarbonisation but are "Net Zero ready", so it only needs to be done once (example of iSFP step-by-step plan from Germany)



## Enabling low carbon heat

Setting a minimum performance level in terms of space heating demand is also necessary to enable the switch to low carbon heat.

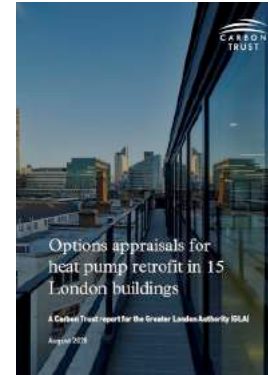
**It would limit the impact on energy costs.** The Carbon Trust's recent report for the GLA, *Options appraisals for heat pump retrofit in 15 London buildings* shows a threshold of space heating demand at around 80-100 kWh/m<sup>2</sup>/year, above which fabric improvements are necessary when the heat source is changed for annual heating costs to be equivalent to or less than current gas costs<sup>1</sup>. As an interim step in a phased whole house retrofit plan, reaching this value is the point at which the heating system can be switched to a low carbon energy source, away from fossil fuels, even if further improvement works are to be carried out later to reach an even lower space heating demand. It also makes it possible for the residents to utilise more effective 'Time of Use' fuel tariffs, such as Economy 7, by ensuring that when the heating is switched off, the home retains warmth for longer.

**It would enable efficient heat pump operation.** If the heat pump has to produce high temperature hot water in order to ensure the home is kept warm because heat emitters are too small, the running costs will increase as the heat pump efficiency drops.

**Radiators could be kept, minimising disruption and costs.** The result of a change to heat pumps can be an effective drop in output of up to 60%. In practice, radiators are often oversized though so it should not be a problem but it should be checked and may have to be compensated by energy efficiency measures.

**It would limit power peak.** The UK power network is undergoing significant upgrades to support the switch to electrical heating and electric vehicle charging. Even so, the generation capacity of the system cannot be infinitely increased.

<sup>1</sup> Please note: the report was not designed to establish this value and further, more direct studies may provide a more accurate or an adjusted value for this threshold.



*The Carbon Trust's recent report for the GLA, "Options appraisals for heat pump retrofit in 15 London buildings", showed that for 7 of the 11 properties studied, fuel bills are not increased when a heat pump is introduced with no fabric improvements.*

*These were generally the properties with an EPC of C or better. That analysis suggests that, with no other measures, a significant number of homes could immediately swap from fossil fuel to low carbon heat with no, or effectively no, fuel cost increase.*

Borough	Type	Floor area (m <sup>2</sup> )	Heating fuel	EPC Rating & kWh/m <sup>2</sup> /yr	Fuel Costs	
					Current	Forecast - no fabric changes
Camden	Ground Floor Flat	49	Gas	C 69	£302	£311
Barnet	Mid Floor Flat	75	Gas	B 26	£245	£218
Lambeth	Ground Floor Flat	53	Gas	C 74	£294	£276
Wandsworth	Top Floor maisonette	114	Gas	D 105	£800	£949
Hillingdon	Terraced House	60	Electric Boiler	C 66	£895	£342
Southwark	Semi detached House	93	Gas	C 72	£402	£396
Croydon	Detached House	133	Gas	D 123	£823	£1101
Newham	Terraced House	94	Gas	D 94	£823	£741
Lambeth	Terraced House	142	Gas	E 156	£952	£1,133
Greenwich	Block of Flats	5700	Gas - Communal	C – E 116	£27,618	£37,459
Enfield	Block of Flats	2900	Electric Heating	C – E 52	£32,584	£11,849



400,000 homes in London still have only single glazed windows and more generally the Parity Projects analysis suggests that window and external door upgrades are required to 1.5 million homes. This represents a large carbon and relatively easy carbon saving and home improvement opportunity. A window upgrade might be part of phase 1 of a whole house retrofit plan for many homes and it is likely the energy savings and peak heat demand reduction from window upgrades may also enable many homes to be 'heat pump ready'. These two measures together, driven by roll out efforts for both, could significantly accelerate and enable a pathway towards Net Zero. [London could become the first city in the UK to have a 'No more single glazing' target.](#)

### Aesthetic quality

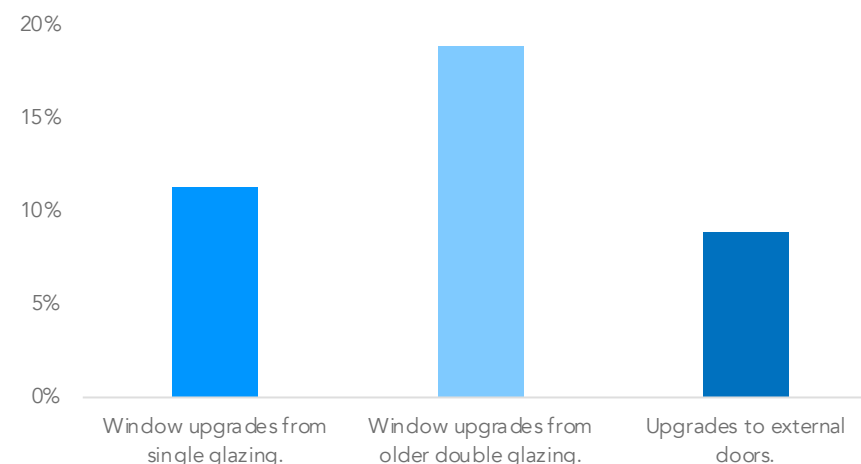
One of the barriers to large scale adoption of better windows are aesthetic and heritage considerations. This has certainly restricted works to listed buildings and in many conservation areas. High quality double, triple and evacuated glass now offer aesthetically compatible options for all building types. Secondary glazing also has its place especially for historic buildings.

### Quality installation

While the quality of glazing and windows has transformed over the last decade, the quality of the installation has not necessarily kept pace. Very few installers practice good airtight installation techniques. This skills gap needs to be addressed as part of any push on window replacement, in order to avoid a performance gap.

### Embodied carbon

It is recommended that the window choices should be carefully considered in order to maximize energy and carbon saving over time and avoid a large embodied carbon impact, either as a result of short lifespan or inherent high embodied carbon.



Initial data out from Parity indicating that 40% of the stock require window/door upgrades – 11% of homes require window upgrades from single glazing.



An example of a house fitted with various enhanced glazing. New double-glazed sashes on the second floor, secondary glazing to the first and new double glazing into old frames on the ground.



Air tightness . An important but still undervalued aspect of window installation



## External Wall Insulation is easier than Internal Wall Insulation

It is tempting to assume that External Wall Insulation (EWI) can be avoided, and that Internal Wall Insulation (IWI) is always easier. It is not the case: IWI can be much more disruptive for residents, reduces available floor space (making it more challenging in terms of residents' support) and introduces energy efficiency and technical risks which are easier to manage with EWI. For blocks of flats, difficulties in securing all residents' support IWI may prevent it from happening altogether.

## EWI and reputation

The early roll out of EWI within the UK under schemes like CESP and ECO has resulted in some poor quality work, both technically and aesthetically. One of the consequences of that is an increased resistance to EWI within a number of local authority planning departments, especially to buildings which were originally brick faced. EWI has to be designed with great care in relation to fire standards and building safety as well as moisture, but there are successful examples. Concerns about combustibility may be a barrier to take up and must therefore be addressed.

## Encouraging better EWI

Parity Projects' modelling has shown that EWI will be needed at scale (**up to 30% of homes**). It is likely that mid rise blocks of flats will be a key typology requiring this sort of thermal upgrade. **Rather than restricting EWI there is the possibility for London local authorities to promote better designed approaches to the use of EWI.** The examples shown alongside demonstrate how the use of color and relief can create visually engaging and pleasing elevations.

This does require design and some additional work on site. Quality work might cost a little more but the results can match and even better the existing elevations.



Dallas Road Estate, Lewisham

The architecture of this housing block was transformed in a positive way by the use of grey coloured render that forms the backdrop to colourfully painted architectural detail.



Southwark Park Estate

The use of colour and pattern to the render of this block has successfully replicated some of the originally features and has lifted the feeling of the whole.



Munich. Housing block renovation.

The uses of relief, variation in tone as well as texture makes this attractive elevation feel as though it has always been this way.



Springfield Garden Charlton

Originally a brick faced series of blocks, the use of colour raises the quality of this cladding above the light white grey so often seen.



### Delivering Internal Wall Insulation at scale

Parity Projects' modelling suggests that as much as **35% of dwellings** will require Internal Wall Insulation (IWI). The IWI market has remained much smaller than the EWI market due to the disruption involved with installing it and possibly due to perceived risks around it, including those associated with moisture. Tenants frequently refuse to consent to IWI installation due to the substantial disruption caused. Achieving the required scale of IWI will require engagement with residents but also a specific approach to how to address two key risks together: moisture and fire.

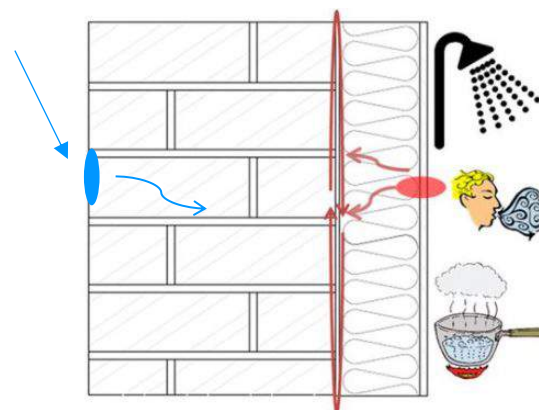
### Addressing moisture and fire risks together

It is commonly accepted that the risk of moisture problems is higher with IWI due to potential for moisture trapping to take place at the wall/insulation junction. A consensus is also developing that moisture open wall/insulation junction. A consensus is also developing that moisture open wall/insulation junction. A consensus is also developing that moisture open wall/insulation junction. A consensus is also developing that moisture open wall/insulation junction.

As well as moisture risk and following the increased scrutiny on building safety, there is an onus on local authorities to consider the fire safety of all types of applied insulation. With the exceptions of mineral wool and some recently developed insulating plaster products, all insulants are, to some degree, combustible. Generally, IWI is covered with a non-combustible layer of plasterboard or a wet applied plaster coat. While that covering may minimise the risk of combustion, there remains some notional risk:

- Electrical sockets and conduits that may have been chased into the IWI or that sit within a battened void layer between insulation and plaster finish
- Instances where insulation traverses the joist zone between floors and potentially provides a path for fire spread between separate flats.

**We recommend a London-wide review to take place on these risks and guidance to be issued to local authorities on acceptable IWI solutions.**



*Moisture risk in IWI applications.*

The interface between the original wall surface and the IWI has the potential to allow interstitial condensation and trap moisture. These risks can be managed through careful design and specification.



*Wet applied insulating plaster*

This is one IWI solution that promotes moisture management by reliance on the material property



## Maintaining and improving indoor air quality

Air quality within homes is a critical factor affecting human health and the building fabric. Controlling moisture load, CO<sub>2</sub> and pollutant levels in the air we breathe requires adequate fresh air from outside and extraction of vitiated air from indoors. Retrofit deliberately makes homes more airtight in order to avoid wasting heat energy. As homes are made more draught free it is important to ensure that adequate controllable ventilation systems are fitted to maintain consistently good air quality.

Where homes are expected to achieve an air permeability better than 5m<sup>3</sup>/m<sup>2</sup>/h @ 50Pa, which includes most whole house retrofit projects, it is increasingly recognised that continuous mechanically assisted ventilation will be required. Continuous extract ventilation from wet spaces with trickle vent inlets within windows can ensure that better air quality can be maintained. This can be arranged for with individual fans in each wet space or with one centralised fan and a small amount of ductwork.

## Further energy savings from heat recovery or demand control

Where a central fan is possible, a further improvement is to provide balanced supply and extract ventilation with heat recovery. This provides the best air quality by guaranteeing the supply air path. Heat recovery saves more than 10x the amount of electricity needed to run the fans through saved heat energy.

Demand control extract ventilation can achieve energy saving by monitoring the air quality and adjusting the ventilation rate.

## Natural ventilation in summer

All systems should be coupled with opening windows to give residents control and purge ventilation for summer comfort.

**London local authorities should consider mechanical ventilation alongside energy efficiency measures and develop a plan to deliver these systems at scale.**

Intermittent extract fans* IEV	NOT GOOD ENOUGH FOR AIR-TIGHT HOMES
Passive stack ventilation* PSV	
Single-room heat recovery ventilators Supply and extract HRRVs	CONTINUOUS VENTILATION IF AIR PERMEABILITY <5 m <sup>3</sup> /m <sup>2</sup> h @ 50 Pa
Continuous mechanical extract* Centralised MEV Decentralised MEV	
MVHR Whole house supply and extract with heat recovery	

A continuous mechanical background ventilation strategy should be adopted wherever a retrofit may improve the airtightness of the home below a permeability threshold of 5m<sup>3</sup>/m<sup>2</sup>hr.



Installation of a whole house mechanical ventilation system with heat recovery in a flat as part of a retrofit. In this case installed in the ceiling above a kitchen.



## Action 3 Electrify heat

### Individual gas boilers are the norm – this needs to change

Parity Projects' analysis shows that individual gas boilers currently vastly outnumber other heating systems. **This needs to change and is the most important move we need to make to achieve London's climate change objectives.**

### Heat pumps are the best option

The electricity grid has decarbonised and will continue to decarbonise, thus the most reliably low carbon heat source is electricity. This is done most efficiently, and has lower running costs, when using heat pumps. There are various types of systems available, including air and ground source heat pumps, exhaust air heat pumps, and heat pumps integrated into a domestic hot water store.

Domestic hot water storage is required when using heat pumps.

### What other options are available?

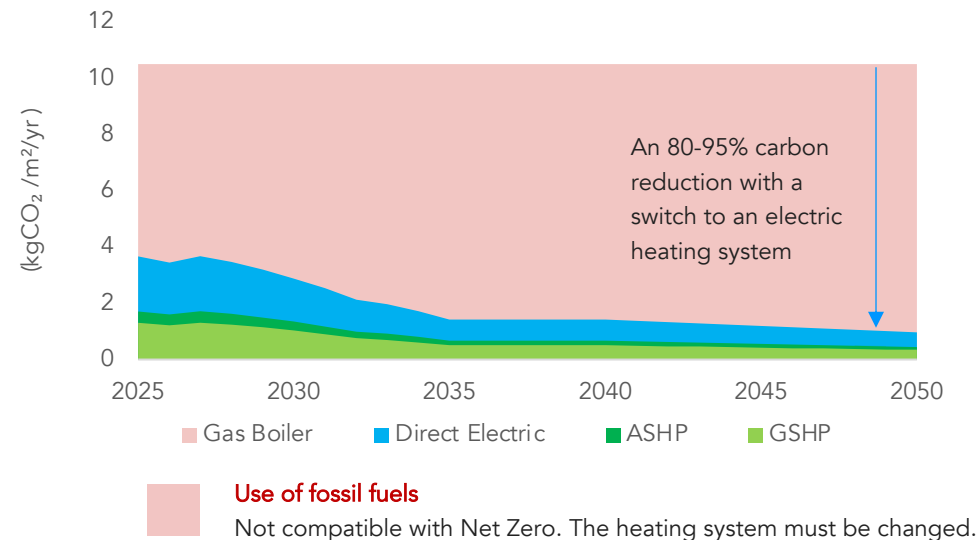
Direct electric heating, for example through panel radiators, will become low carbon in the future, as the grid continues to decarbonise. However direct electric heating can lead to very high heating bills.

Heat networks may have a role to play but they must provide a sustainable source of low carbon heat with a clear Net Zero compliant plan.

Hybrid systems may provide an interim solution for homes with the highest space heating demand to decarbonise quickly. These systems pair a heat pump to provide most of the heating with a gas boiler to provide a top up for the coldest days. With the correct controls in place, and alongside as many fabric improvements as possible, these systems can substantially reduce carbon emissions.

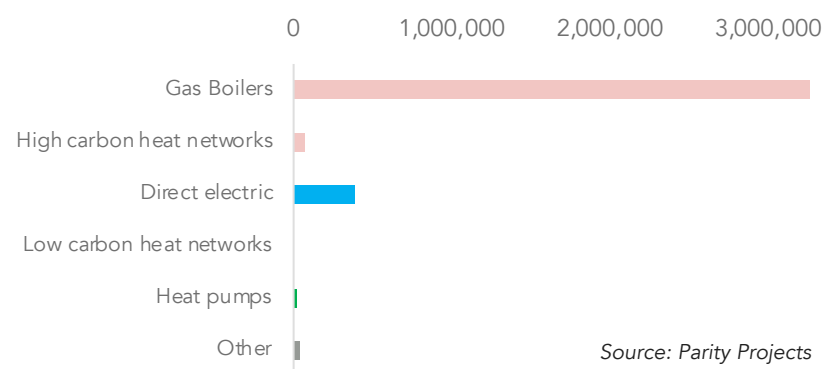
### Plotting a course to low carbon heat solutions

The following pages set out the recommended process needed to analyse each home and to determine the most suitable low carbon heat system.



### Comparison of carbon emissions associated with different heating systems or a typical home over the next 25 years.

Emissions from a gas boiler stay constant, whereas emissions from direct electric systems and heat pumps reduce over time due to grid decarbonisation. Heat pumps have lower emissions than direct electric systems purely because they are more efficient.



*This chart shows the current number of installations in each main heating system category in London. The move away from gas boilers is necessary but the task is significant. 'Heat networks' include both district heating systems and communal (building scale) systems.*  
Source: Parity Projects



## Action 3 Activity 3.1 > Undertake a stock analysis of heating systems

### Current heating system and opportunities for each home

Moving away from fossil fuel heating will require a composite approach between heat pumps, direct electric heating, and low carbon district heating (where already available).

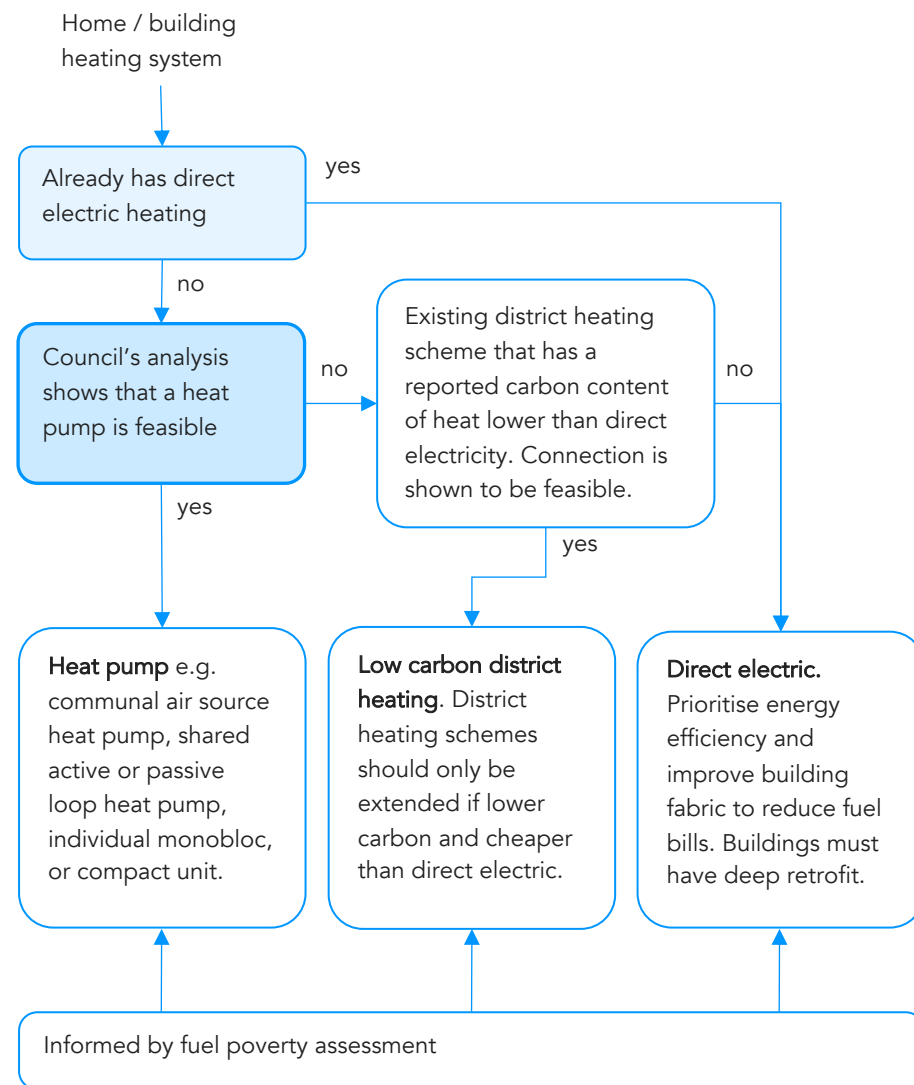
Heat pumps should be prioritised as an energy and carbon efficient technology that is available and can be installed now. This must be as part of a holistic approach, particularly for inefficient homes where there is a risk of fuel poverty.

There are more and more innovative examples of heat pumps being integrated in existing buildings, however they are unlikely to be possible to install in all buildings in London. Example issues include the following situations:

- No space for external unit for air source heat pump
- No space for internal hot water tank (or heat pump if an internal unit is needed)
- No space for communal pump sets and heat pump for communal systems
- Insufficient electrical supply (usually can be upgraded)
- Insufficient building efficiency, heat load is difficult to meet with a heat pump or makes efficiency unacceptable (requires fabric improvements)

London local authorities should undertake a stock analysis of heating systems in their borough. This should include at least their own stock and potentially others' based on publicly available data and/or data provided by homeowners/landlords voluntarily. The Pathways tool developed by Parity Projects, to which boroughs have access for a year under the terms of Parity's work for London Councils, would enable the production of an initial assessment very efficiently which can then be refined.

The stock analysis should aim to include a set of feasibility criteria for finding homes that are appropriate for heat pumps, and use this to categorise housing types suitable for different low carbon heating approaches.



Outline heating system decision flow chart for existing buildings



### Consider the alternatives, in a logical order

When dealing with an existing boiler in need of replacement, or if a dwelling is at a trigger point for retrofit, heating alternatives which use electricity should be considered in a logical sequence, starting from the ones which are most efficient at transforming one unit of electricity into one unit of heat.

The recommended sequence is shown on the adjacent diagram.

### Enabling low carbon heat

Simply swapping a heat pump to replace an existing gas boiler is generally seen as problematic for both economic and practical reasons.

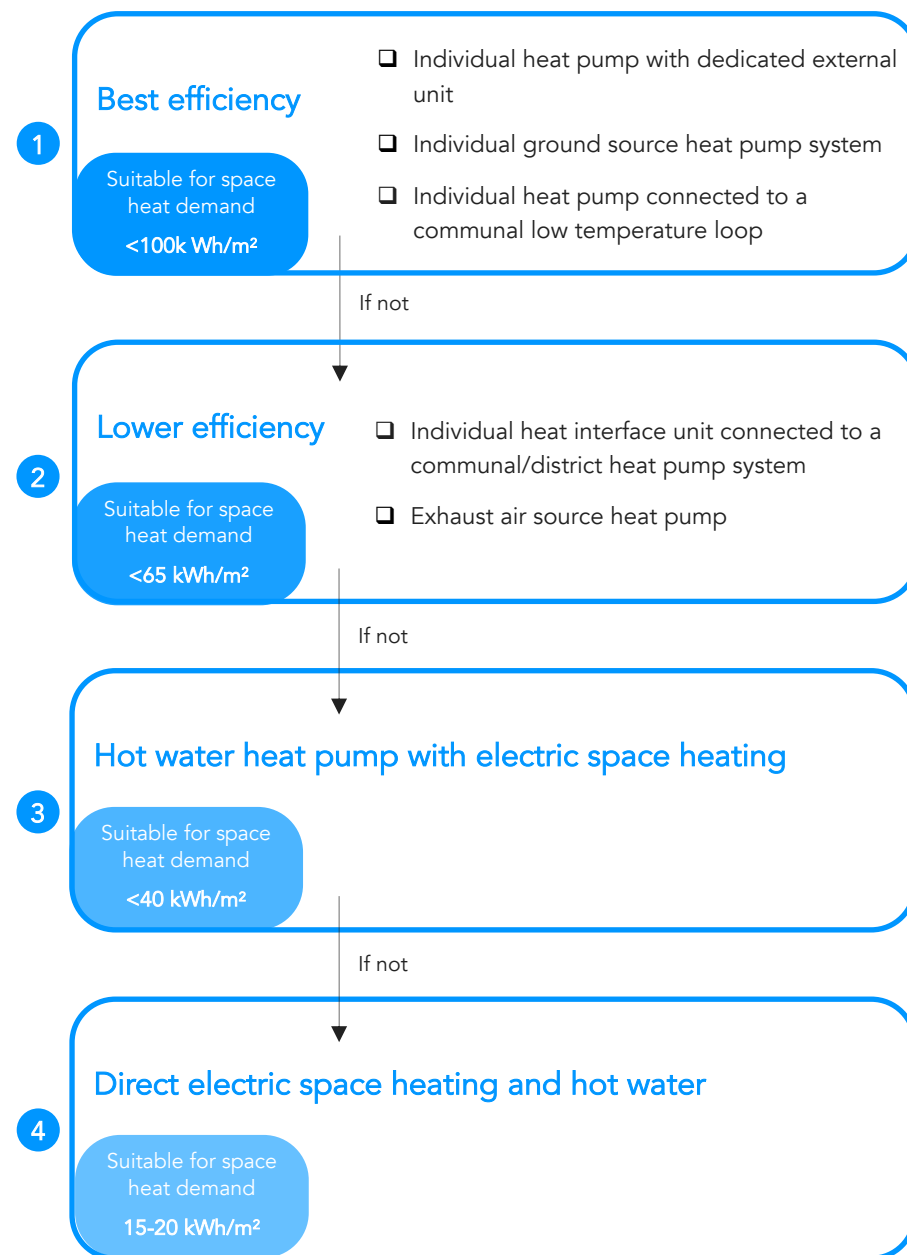
As the options step down from most to least efficient heat source, the fabric performance – the space heat demand – has to be improved in order to reduce the energy demand such that the change to low carbon heat does not substantially increase energy bills, to limit the changes to the existing heat emitters and pipework and to ensure that fuel poverty is not increased.

### Heat networks

For heat networks, the carbon performance should be reviewed and compared to the other options available. The space heat demand threshold has to be set using the same criteria, so that homes on heat networks are not disadvantaged.

### Where space heating targets are unachievable

An interim step may be to use a hybrid heat pump while fabric improvement works are undertaken





### The carbon impact of different heating systems

Today, there is less carbon emitted for every kWh of electricity delivered than there is for every kWh of gas burned. This is because of the growing proportion of renewables contributing to our electricity grid.

Every year, as grid electricity decarbonizes, the CO<sub>2</sub> emissions from a heat pump will reduce, whereas the CO<sub>2</sub> emissions from a gas boiler will remain constant.

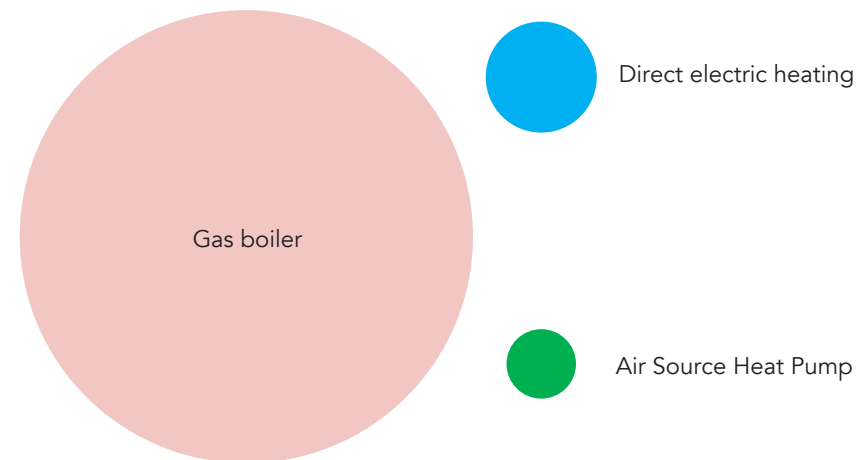
Over the next 30 years, the carbon content of electricity is predicted to drop even further, with an average carbon factor of 58 gCO<sub>2</sub>/kWh, compared with gas which has an almost static carbon factor of 230gCO<sub>2</sub>/kWh. This means that relative to an Air Source Heat Pump, for the same amount of heat delivered, gas boilers will emit 10x more CO<sub>2</sub> and direct electric heating systems 4x more CO<sub>2</sub>.

### We need to stop adding to the problem

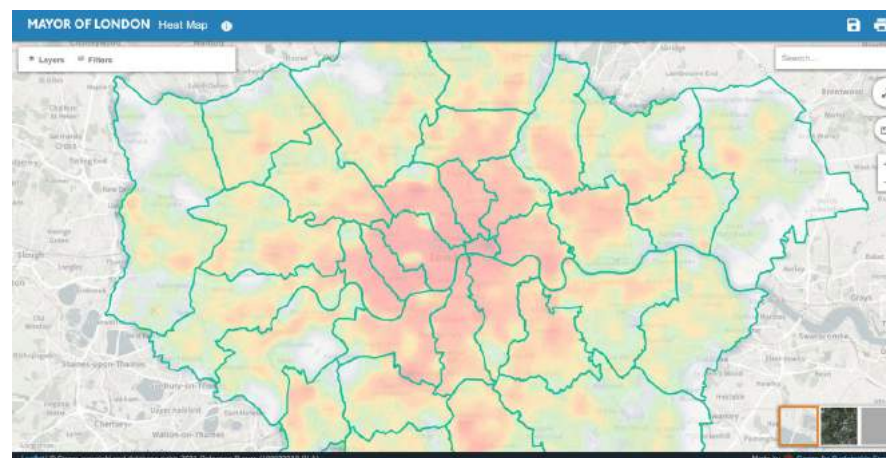
The number of gas boilers in existing homes needs to decrease rapidly in order to meet climate change targets. London boroughs should not be installing new gas boilers – either in new homes or existing homes where old boilers need replacing. Ideally, other actors (landlords, housing associations, homeowners) should be encouraged to adopt the same principle. The planning department in each London borough should be engaged with in order to identify who can help ensure new homes are not connected to communal or individual gas boilers.

Replacing boilers at the end of their lifetime with low carbon heat alternatives provides an ideal opportunity for removing the contribution gas boilers make to cumulative emissions. Approximately 160,000-200,000 gas boilers are replaced in homes in London every year. If all of these were replaced with low carbon alternatives, there would be no existing gas boilers by 2039.

**We recommend no new and replacement gas boilers are installed on council-owned stock by 2023 at the latest.**



*Relative CO<sub>2</sub> emissions of different heating systems: Over the course of the next 30 years, for the same amount of heat delivered, a gas boiler will emit 10x more CO<sub>2</sub> than an Air Source Heat Pump, and 4x more CO<sub>2</sub> than a direct electric heating system using grid electricity.*



*The London Heat Map could record each connection to the gas grid as their number should be reduced steadily over the next 30 years.*



## Action 3 Activity 3.4 > Enable a heat pump roll out

The roll out of heat pumps can harness the decarbonisation of the grid and deliver heating at an affordable cost. So far in the South-East, around 30,000 heat pumps have been installed. According to Parity Projects, more than a million heat pumps need to be installed to meet their modelled interim carbon target alone. Local authorities need to enable this heat pump roll out.

### Houses

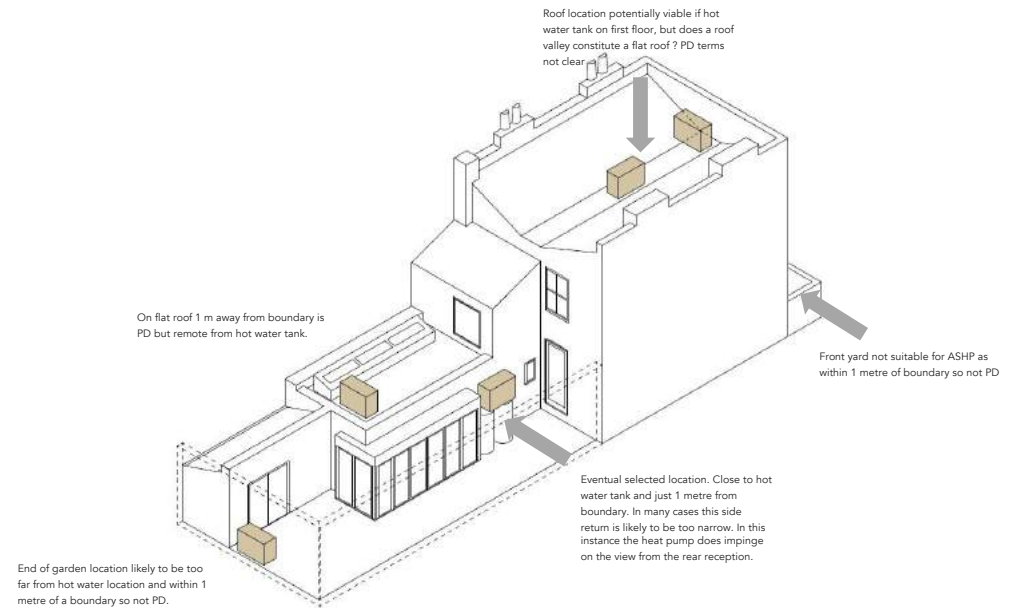
Single dwellings are arguably the 'ideal' type for a heat pump roll out as they can be fitted with an individual air source heat pump (ASHP). Anecdotal experience of fitting these has shown that it is not always easy though; permitted development rights are not always clear, nor do they always help. Clearer guidance on permitted development and possible adjustments to local planning policy by London local authorities, particularly in regard to how supporting noise assessments can be carried out more cost effectively would be very beneficial.

### Block of flats (with open space)

Large blocks of flats can have limited potential for individual or communal ASHP deployment due to the problems associated with siting the heat pumps and the long runs of pipework. The emerging best solution for these challenging situations appears to be communal ground source heating with local heat pumps within each flat. This allows low temperature heat to be moved over long distances with little heat lost. The local flat heat pump raises the temperature for heating and hot water. This technology relies on having enough space to drill deep boreholes. Local authorities engaged in this type of projects could share their experience of the technical challenges as well as of the long-term performance.

### Challenging situations

The biggest challenge for heat pump deployment is likely to be flats within dense blocks of flats without open space and Victorian terrace houses that have been converted to flats. Hybrid solutions and direct electric heating may be required.



*The drawing above shows the number of locations that were reviewed for this typical terrace house. The challenges of permitted development clauses and planning in general and the need to have heat pump and hot water tank close to one another frequently makes this exercise harder than it need be.*



*The Channel Island / Exeter Road estate in Enfield has been retrofitted with a communal ground array and individual water heat pumps in each unit.*



The table below sets out the popular concerns associated with heat pump retrofits. The actual level of risk associated with this concern has been ranked between **high**, **medium** and **low**. We would recommend developing a **London guide to heat pump retrofit** to improve quality of design and installations and reduce the risk of associated with heat pump retrofit. This will build on the GLA's report on heat pump retrofit.

Popular concerns on heat pump	Risk level	How to mitigate it?
They do not work in leaky dwellings	High	Very high space heating demand does diminish the efficiency of heat pumps. Ensuring all homes where a heat pump will be installed have achieved a minimum standard of fabric performance (e.g. 100 kWh/m <sup>2</sup> /yr) is a key requirement.
Supply chain is not ready to maintain them	High	The availability of qualified staff to carry out the maintenance is currently limited. Recruitment and training of staff, including upskilling training for plumbers and gas safety engineers, will answer this issue as the demand increases. Consistent policy will assist in encouraging businesses to invest in upskilling their workforce.
Embodied carbon	High	Embodied carbon of heat pumps may vary significantly depending on the refrigerants they use and the manufacturer. The selection process should seek to minimise the embodied carbon and consider it as part of the whole house approach to lifecycle carbon.
Refrigerant leakage	High	Packaged units such as monobloc ASHPs are factory made and tested and the risk of leakage is very low. For split units with site made refrigerant pipework, the choice of refrigerant used will be a key factor, as well as workmanship quality and regular maintenance.
The theoretical efficiency of the heat pump system will not be delivered	Medium	The performance of the heat pump is a function of the system design. Installers need to be trained to understand the issue and to give proper advice on which system is appropriate where.
There is not enough internal space	Medium	Where space is very constrained, higher fabric performance and direct electric space heating may be a more optimal solution or small 'DX' heat pumps with wall mounted heaters. Hot water storage will almost always be required, which may require some loss of space in homes that currently have combi boilers.
There is not enough external space	Medium	Where external space is limited, particularly for high density developments such as towers, communal systems with central heat pumps, possibly located on a roof, may not be possible. Alternatively, exhaust air source heat pumps which are located internally could be appropriate if internal space is not as constrained.
They cost three times as much to run	Medium	This is a combination of ensuring the system design achieves a good Coefficient of Performance, space heating demand being moderated, and the users being aware of how to use the systems efficiently. A properly designed system, used effectively in a home with reasonable thermal efficiency will not cost more to run than a gas boiler.
Capital costs are too high	Medium	There are some funds available to offset the capital costs, including the Renewable Heat Incentive (RHI), but there will need to be other funding schemes to encourage take up of heat pumps.
User experience	Medium	The operation of heat pumps is different to combi gas boilers so information explaining how heat pumps work and are best used should be provided to residents. Smart controls are also crucial for their efficient operation and to keep heating costs down.
High servicing costs	Low	The typical costs of servicing heat pumps should be comparable to the typical costs of gas safety testing and maintenance for gas boilers.
External noise	Low	Acoustic screening may be required for some large (communal) installations. Individual units now on sale are generally quieter than the background noise levels in urban and suburban areas.
External appearance	Low	Perception is subjective but careful integration is key. Guidance can stipulate the types of installation that are not acceptable, but it is not possible to make all units invisible, so familiarity with the units will grow and acceptability will therefore improve.



## Heat networks and the challenge of decarbonisation

Traditional heat networks use the combustion of fossil fuels and distributed heat at relatively high temperatures. They are evolving towards lower distribution temperatures that are better suited to non-combustion based heat sources such as heat pumps. Lower system temperatures also reduce heat losses and overheating risk, which is particularly important as buildings become more energy efficient.

Decarbonisation plans should be implemented for every existing heat network as soon as possible, and ideally within the next 12 months. These plans should be consistent with guidance from the Climate Change Committee.

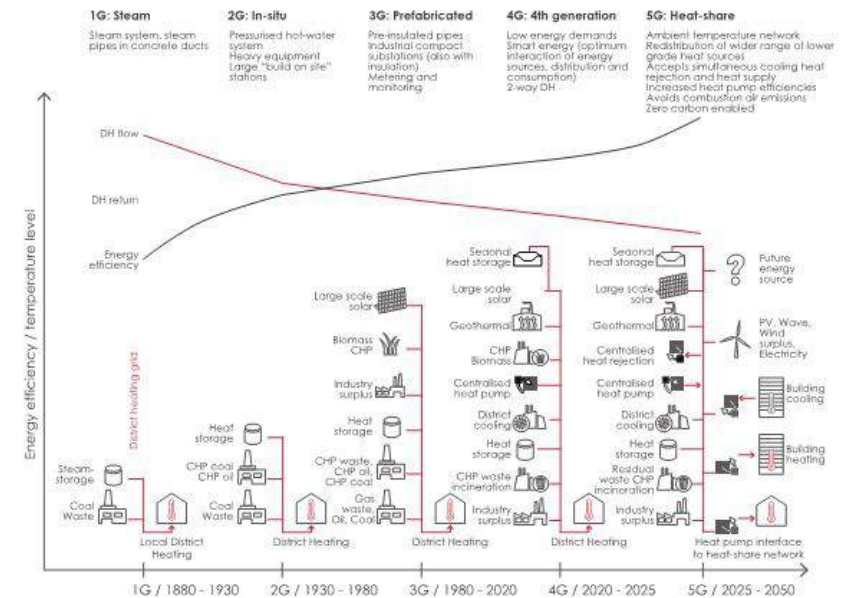
## No fossil fuels for new networks

Stay within carbon budgets and avoid locking in high emission heat sources, new heat networks should not use fossil fuels. In practice, this means most new heat networks will use heat pumps. Committing to heat pumps is important as this will affect the design of the entire system. It also provides a great opportunity for heat networks to take advantage of new lower temperature sources of heat than would previously have been viable.

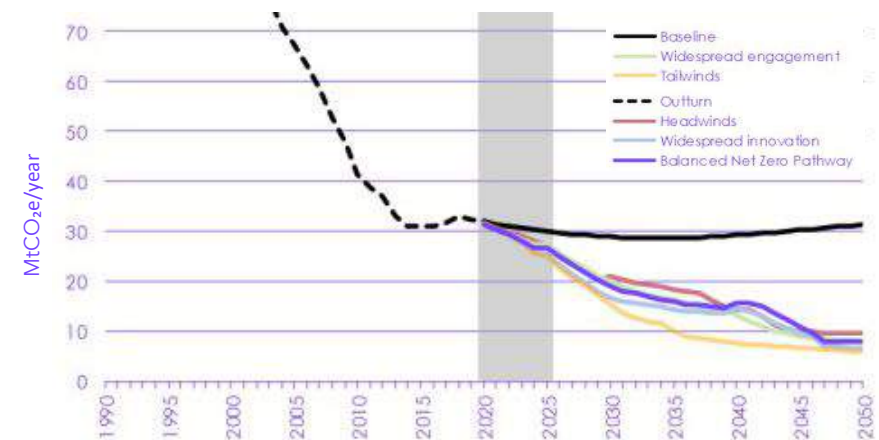
## The future of Energy from Waste

Energy from Waste is one of the highest carbon forms of electricity generation, with emissions of around 890 gCO<sub>2</sub>/kWh<sup>1</sup>. This is almost five times higher than the 181 gCO<sub>2</sub>/kWh emitted by the UK electricity mix in 2020<sup>2</sup>. To achieve Net Zero emissions, the Climate Change Committee report in their Sixth Carbon Budget that emissions from the waste sector must reduce 75% by 2050 through waste prevention, increasing recycling rates to 70% by 2030, and adding carbon capture and storage to waste to energy plants. Any heat network relying on Energy from Waste should be sustainable and therefore be consistent with this trajectory.

1. Jeswani & Azapagic (2016) Waste management. (Elsevier)
2. National Grid ESO (2021) 2020 greenest year on record for Britain



Heat networks must continue to evolve, and each existing heat network should have a decarbonisation plan in place, ideally in the next 12 months (© Chris Twinn for LETI Climate Emergency Design Guide)



Emissions from the waste sector must reduce 75% by 2050. This will require reductions in waste volumes, increased recycling and carbon capture and storage. Heat networks relying on Energy from Waste need to be sustainable (© Climate Change Committee, using BEIS data).



### Direct electric heating and the issue of energy bills

For homes already served by direct electric heating, retrofit based on energy efficiency measures including fabric and system optimisation will potentially offer significant energy and fuel cost benefits.

For dwellings which are currently served by gas boilers and not suitable for heat pumps, direct electric could be an option but the impact on energy bills should be carefully considered, requiring fabric improvements.

### Direct electric system choices

Direct electric heating comes in a number of different forms. According to Parity Projects' modelling, there are around 400,000 homes in London that currently have some form of electric heating. More than half of the electrically heated homes have either storage heaters or electric panel/convector heaters. In many cases these can be replaced or upgraded with modern, more efficiently controlled version of the same type of heater.

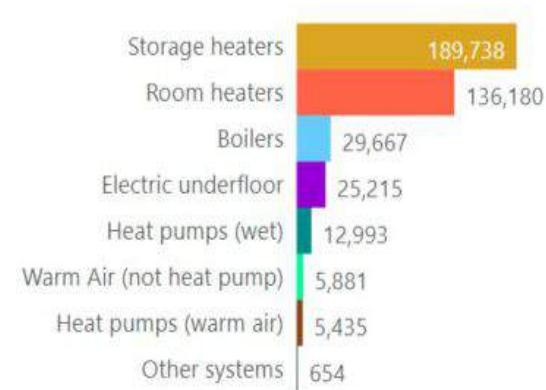
For homes that currently have gas boilers and which need to switch to direct electric heating, where a heat pump cannot be installed, the highest priority is to achieve very good levels of fabric efficiency so that the space heating demand can be reduced, ideally to 15-20 kWh/m<sup>2</sup>/yr.

The choice of which electric heating system would be most suitable is then driven by the physical constraints of the building and the needs of the occupants. In a home that currently has a wet radiator system, it may be simplest to install an electric boiler. Storage heaters offer a good opportunity to adopt Time of Use (ToU) tariffs. Panel heaters give a rapid response and can be turned down to very low outputs in homes with particularly good fabric.

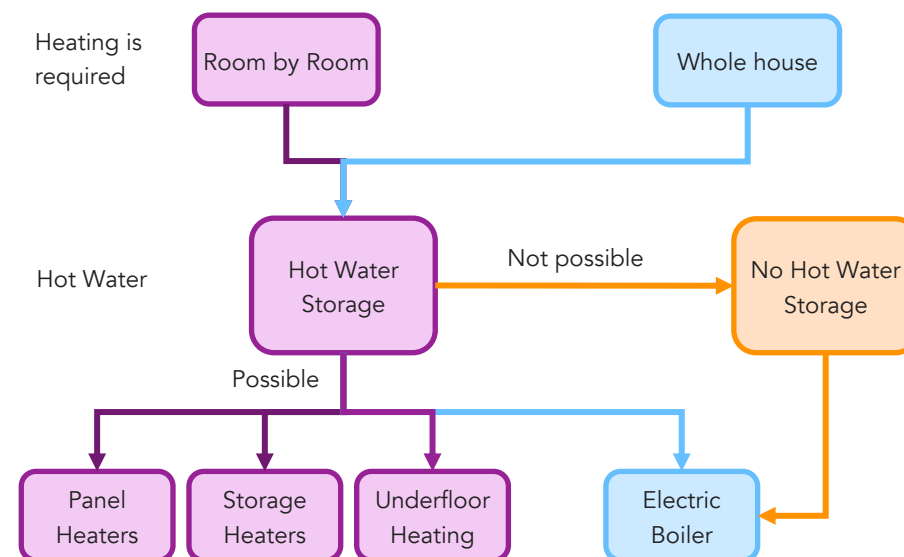
### Hot Water Storage

In all direct electric heated homes, priority should be given to installing hot water storage, to provide energy storage which can limit peak loads and consequently manage costs.

#### Electric heating systems



Parity Projects' summary of existing electric heating systems across London



Choice of electric heating systems: a process largely driven by the physical constraints of the building and the type of user



### Infrastructure upgrades are required

In order for the decarbonisation of power generation in the UK to continue to progress, change is required both on the supply side – power generation – and on the demand side. The power network needs to be locally adapted to be able to accommodate more demand from electric heating systems and electric vehicle charging. The network also has to be reconfigured to be able to make use of local generation from roof mounted PV arrays.

### Long term plans for major infrastructure works

UK Power Networks and Scottish and Southern Energy, the local District Network Operators (DNOs), are investing in the infrastructure to make it more suited to the developing needs, but they have to have a clear policy basis to demonstrate to Ofgem, the regulator, that the investments they make are supported by demand. A **clear statement of timescales and objectives** will allow the DNOs to plan the work necessary to make it possible.

Planning of infrastructure upgrades can be a complex process, requiring negotiation of access and wayleaves and permissions for road closures, all of which can take years. Investment plans are region-wide, crossing borough boundaries and are set out in 5 year budgets, the latest of which is currently in progress. **Early engagement with the DNOs by the London boroughs on the strategies that will be adopted across the region is key to their successful and timely delivery.**

### Make space for demand management

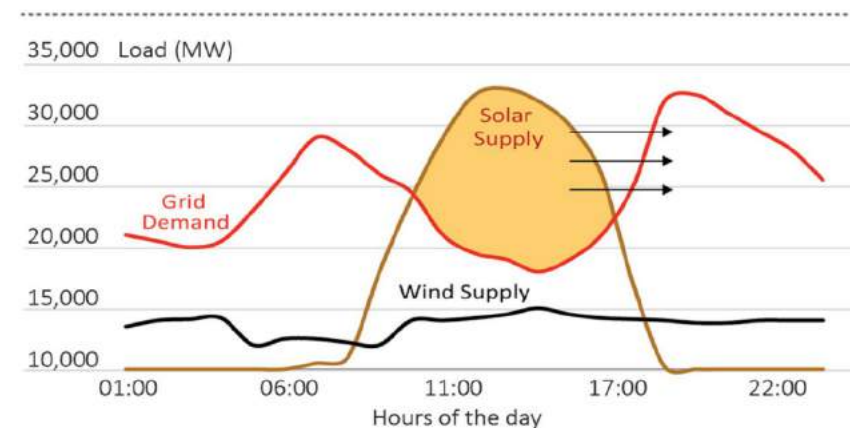
Power demand needs to be flexible, so that energy is used at times of high renewable energy generation. Energy storage and flexible use for homes is a key part of this but there will also be a need for larger scale demand management equipment. Understanding what may be needed and whether Planning Permission may be required is also a part of the discussions with the DNOs to form a city-wide infrastructure that is suitable for the developing needs.



One of the outcomes now in progress from the RIIO-ED1 UKPN business plan, which covers the period up to 2023, is the installation of 4 new substations around London. Consultations for the next business plan, RIIO-ED2 are in progress and will form the basis for similar infrastructure work in coming years.

(Source: UKPN published documents including 'Central London Plan Update 2020')

Time-shift benefits of energy storage



Notional graph of renewable energy supply vs energy demand



## Action 4

# Deliver smart meters and demand flexibility (controls, storage) in retrofitted homes

The steep reduction in the carbon intensity of electricity in the UK has been achieved by significantly increasing the renewable energy contribution, especially from off-shore wind and solar. These intermittent renewable energy sources have displaced high carbon, steady output coal fired power stations. For this process to continue and to be sustainable, it is necessary for the demand to be managed to match the supply in a way that was not previously necessary.

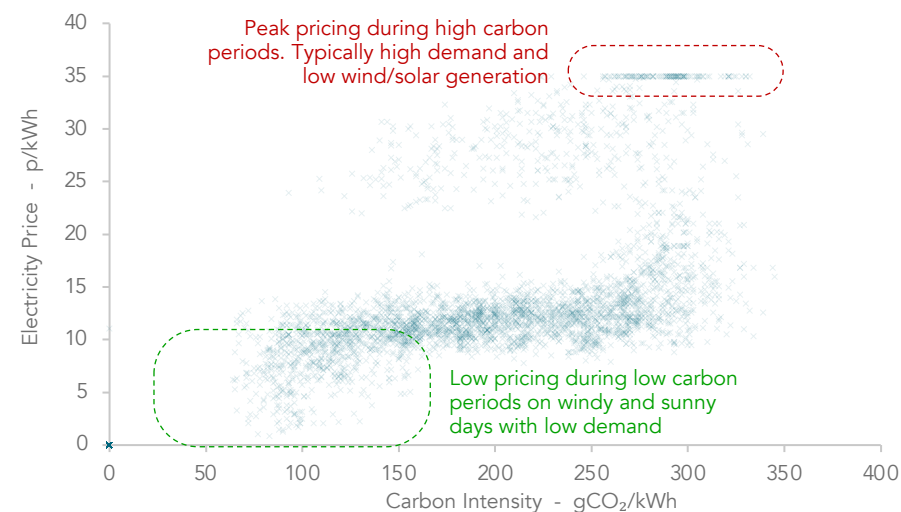
## Smart Meters and electricity tariffs

Off-peak electricity tariffs are currently widely available to domestic consumers (e.g. Economy 7). More sophisticated Time-of-Use (ToU) tariffs are likely to play a bigger role in balancing supply and demand for electricity in the near and medium term. They have been commercially available for some years and are now becoming available to domestic customers. These tariffs track the energy price on an hourly or half hourly basis. If customers are able to reduce their use when prices are high and increase it when they are low, they can pay substantially less for their energy, on average. Smart meters will enable access to a far wider range of energy tariffs than standard meters and provide an opportunity to substantially reduce energy costs if the controls and systems in homes are able to respond to fluctuations in energy prices.

## The benefits of hot water storage

The facility to store energy, most simply as heat in domestic hot water cylinders, is also a crucial part of demand management strategies. Using cheap electricity to heat a tank of water that is then available to use during the day reduces the cost to the consumer and the carbon emissions of the energy. Batteries can also form part of demand management, but the capital costs are currently relatively high, per unit of energy stored and their embodied carbon, chemical constituents and cost are a concern.

London local authorities should encourage and facilitate the roll out of smart meters, especially to fuel poor homes and the installation of heating controls in all retrofitted homes, as well as hot water storage if possible.



*The carbon intensity and price of electricity vary depending on the balance between supply and demand. The above chart shows price vs carbon intensity in London, at half hour intervals over 3 years from 2018 to 2021.*

(Source [www.energy-stats.uk/download-historical-pricing-data](http://www.energy-stats.uk/download-historical-pricing-data))



**Smart Buildings:** Smart meters and smart thermostats are a way of unlocking the power of “agile” tariffs and demand side management to provide affordable low carbon heating. Used in combination with services such as If This Then That (IFTTT) they enable users to access cheap low carbon electricity, while helping the National Grid to balance the network.



## Action 5 Increase solar energy generation on London homes

### Setting a clear target for total solar capacity in London

The Mayor of London has published a Solar Action Plan for London and we recommend building on it. It would be very useful to consider which ambition should be delivered on the roofs of London homes.

By **energy balance**, according to Parity Projects' modelling, the total installed solar capacity by 2030 should be 3.8GW. A solar capacity of **6GW<sup>1</sup>** would then be required if a Net Zero energy balance is to be achieved. We believe these figures should form the basis of London's target for installed solar capacity for homes. The non-domestic sector also should be installing renewable power to match its energy needs.

The **CCC's forecast** of the UK solar electricity generation requires 85GW by 2050. By **population**, London (9.5 million people) would need to achieve a solar capacity of 12 GW by 2050. By **GDP**, the figure would be even higher – close to 28GW.

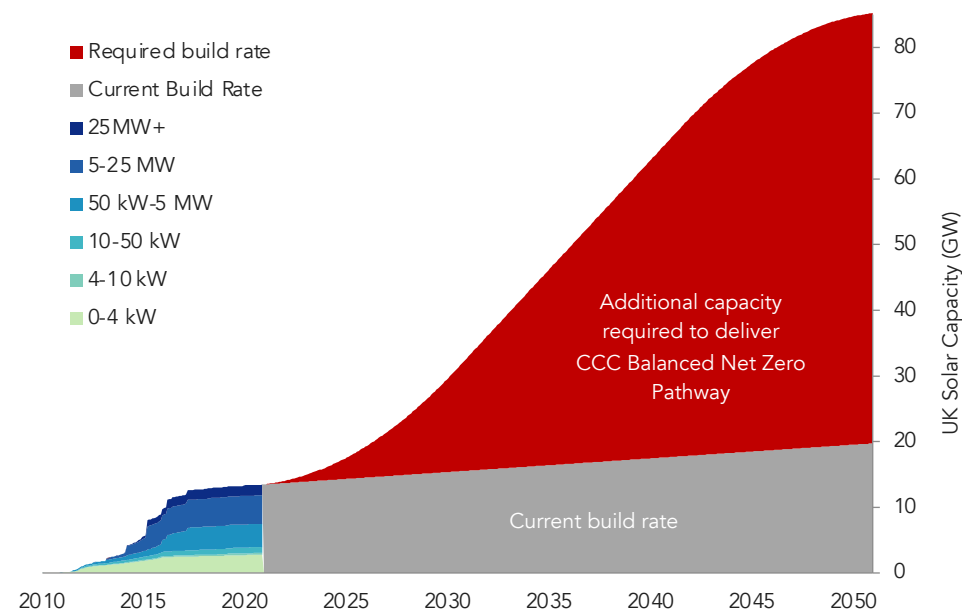
The UK has not yet established how to share out the renewable energy requirement nationally. The density of population and economic activity in London mean that most power is required where there is least space to generate it. This imbalance needs to be addressed but is not in the control of the London local authorities. For now, balancing the energy required seems the fairest option.

### Developing a joined-up plan to achieve it

A lot of great work is already happening. More is required to address each tenure and segment of the market but there is a lot to build upon. Residents of individual homes will naturally benefit from the free electricity generated by these PV panels but ways to enable residents from blocks of flats to benefit from this should also be considered.

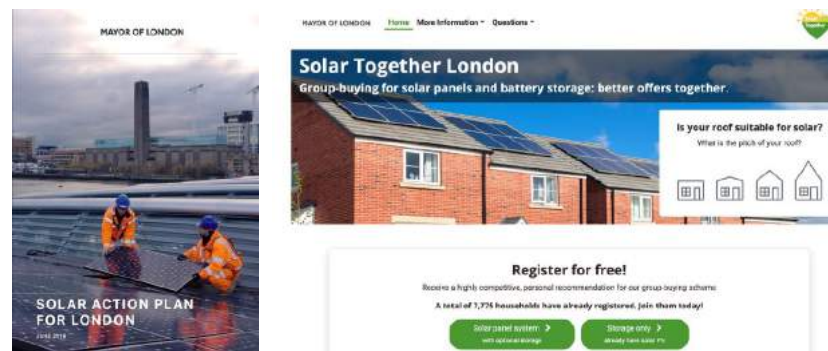
**We recommend that London local authorities and the GLA consider how to accelerate solar PV roll out.**

<sup>1</sup> This would represent a significant increase on the solar generation targets in the Solar Action Plan for London of 1GW solar PV installation by 2030 and 2GW by 2050



**Solar deployment is very important in order to achieve Net Zero Carbon**

(Source: generated from BEIS data to Nov 2020 and then projected forward using 2020 build rates compared to the 85GW target in the CCC Balanced Net Zero Pathway from the sixth progress report).



The GLA and London Boroughs are running the successful Solar Together London project which should be continued and expanded. The new Mayor's Solar Skills London programme has also launched and is looking to support the supply chain. (<https://demo.london.gov.uk/what-we-do/environment/energy/solar-skills-London>)



## Action 6 Map out each building's journey towards lower energy costs and Net Zero




### Each building is different

- Their current condition in terms of energy efficiency and heating system will be different.
- What can be done to improve them will vary and may be constrained by heritage, technical and other considerations.

We have developed the adjacent Retrofit Map to enable the journey of each building towards Net Zero to be summarised and understood.

The Retrofit Map can enable users to understand the current situation of the building (e.g. poor energy efficiency, individual gas boiler) and how it could be improved.

Ultimately, it is recommended that all homes are moved to one of the green squares. The buildings which should be most urgently retrofitted will be in the red squares as they will be consuming most of the carbon budget.

-  **Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.
-  **Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
-  **Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

FABRIC AND VENTILATION	HEAT DECARBONISATION					<div>Low energy</div> <div>↑</div> <div>High energy</div>
	High carbon heat network	Individual gas boiler	Direct electrical heating	Low carbon heat network <sup>1</sup>	Heat pump system <sup>2</sup>	
	Heating demand <40 kWh/m <sup>2</sup> /yr					
	Heating demand <100 kWh/m <sup>2</sup> /yr					
	Heating demand <150 kWh/m <sup>2</sup> /yr					
	Heating demand >150 kWh/m <sup>2</sup> /yr					

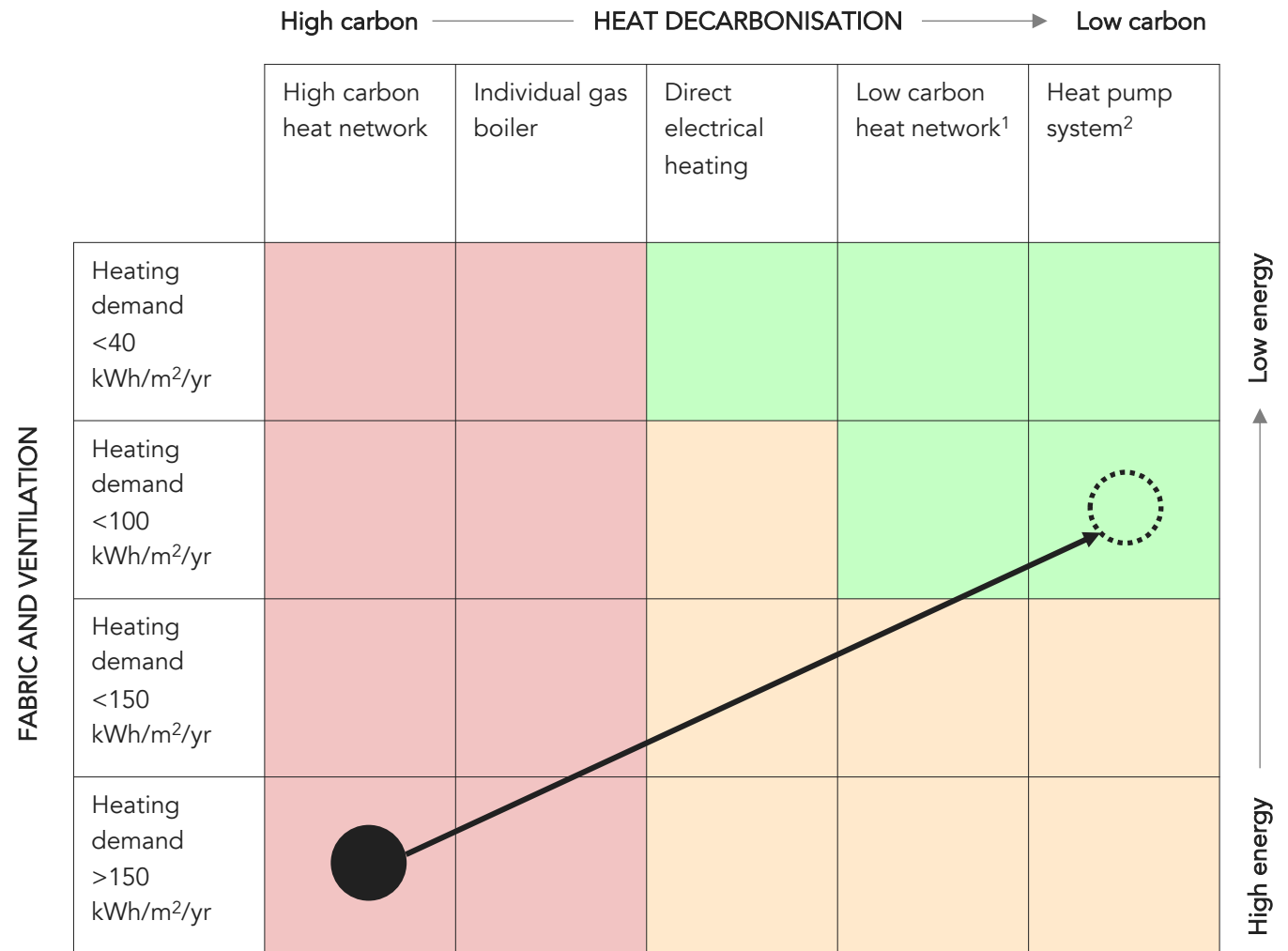
<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this Retrofit Map only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



## Example 1

- **Current situation:** this building is very inefficient and is heated by a high carbon heat network.
- **Changes required:** it should be improved with works on building fabric and ventilation and a new communal heat pump system.



- Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero

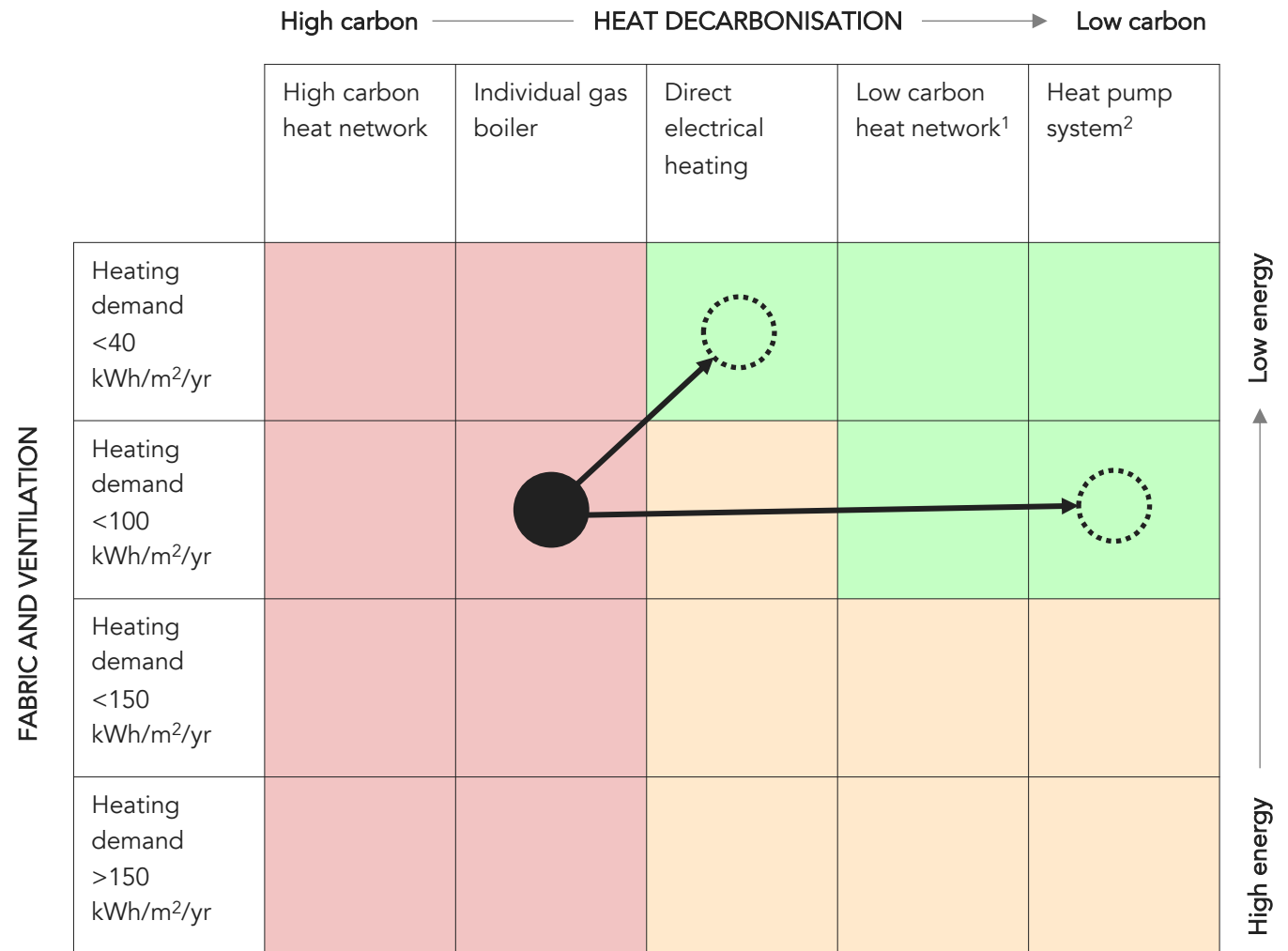
<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



## Example 2

- **Current situation:** this building is relatively efficient and is heated by individual gas boilers.
- **Changes required:** if a heat pump system is feasible, it may be possible that the change of heating system would be sufficient and would not lead to an increase in energy costs even with no fabric and ventilation improvements. However, if a heat pump system is not feasible and direct electric is the selected heating system, improvements to the building fabric and ventilation are recommended.



<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



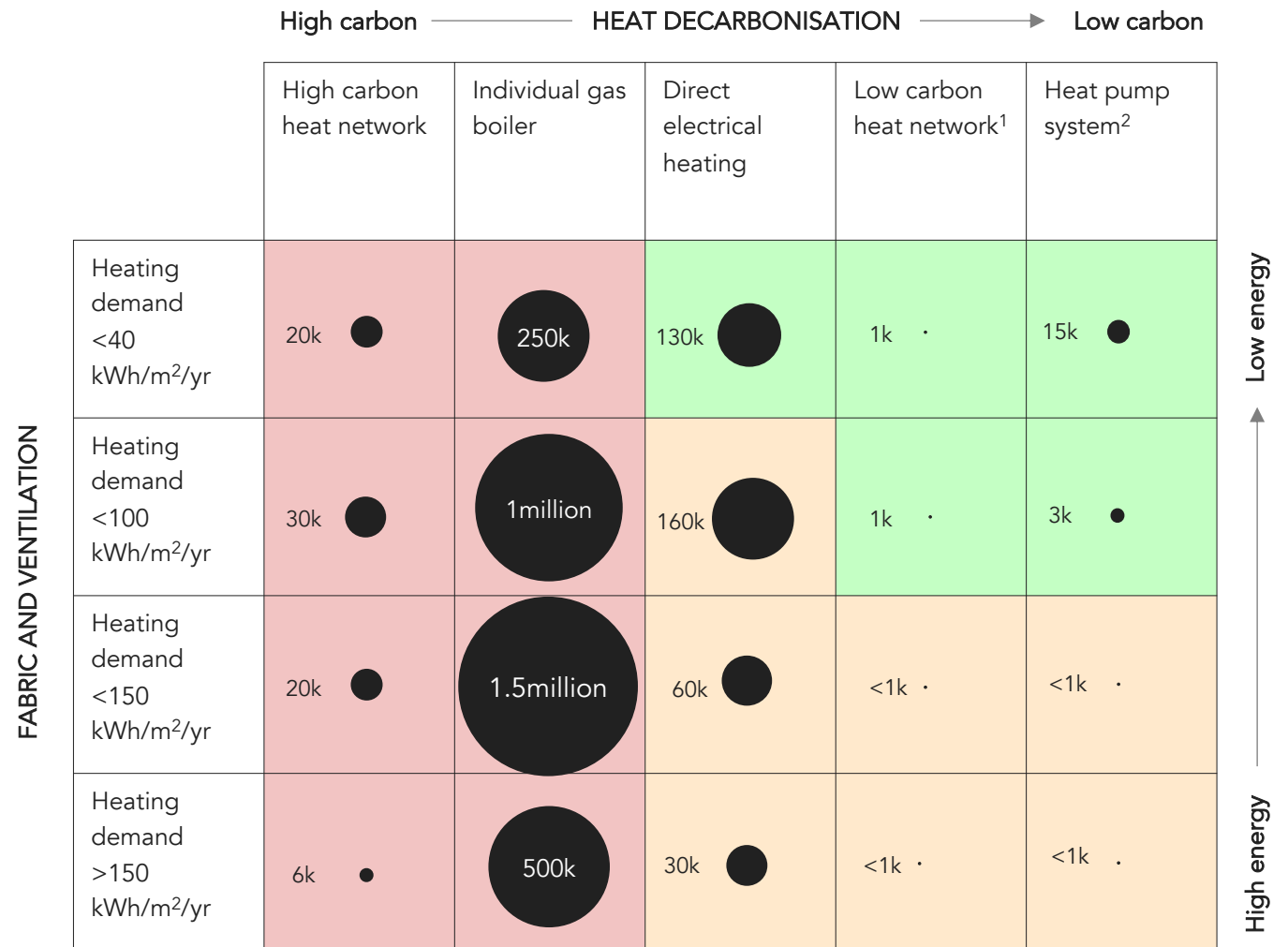
## Current stock analysis

Based on the Parity Projects' data, the adjacent retrofit map indicates the current 'position' of London homes currently both in terms of space heat demand and heating system.

Numbers are approximate. The circle sizes indicate relative numbers but are not to scale

Page 191

- Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero



<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



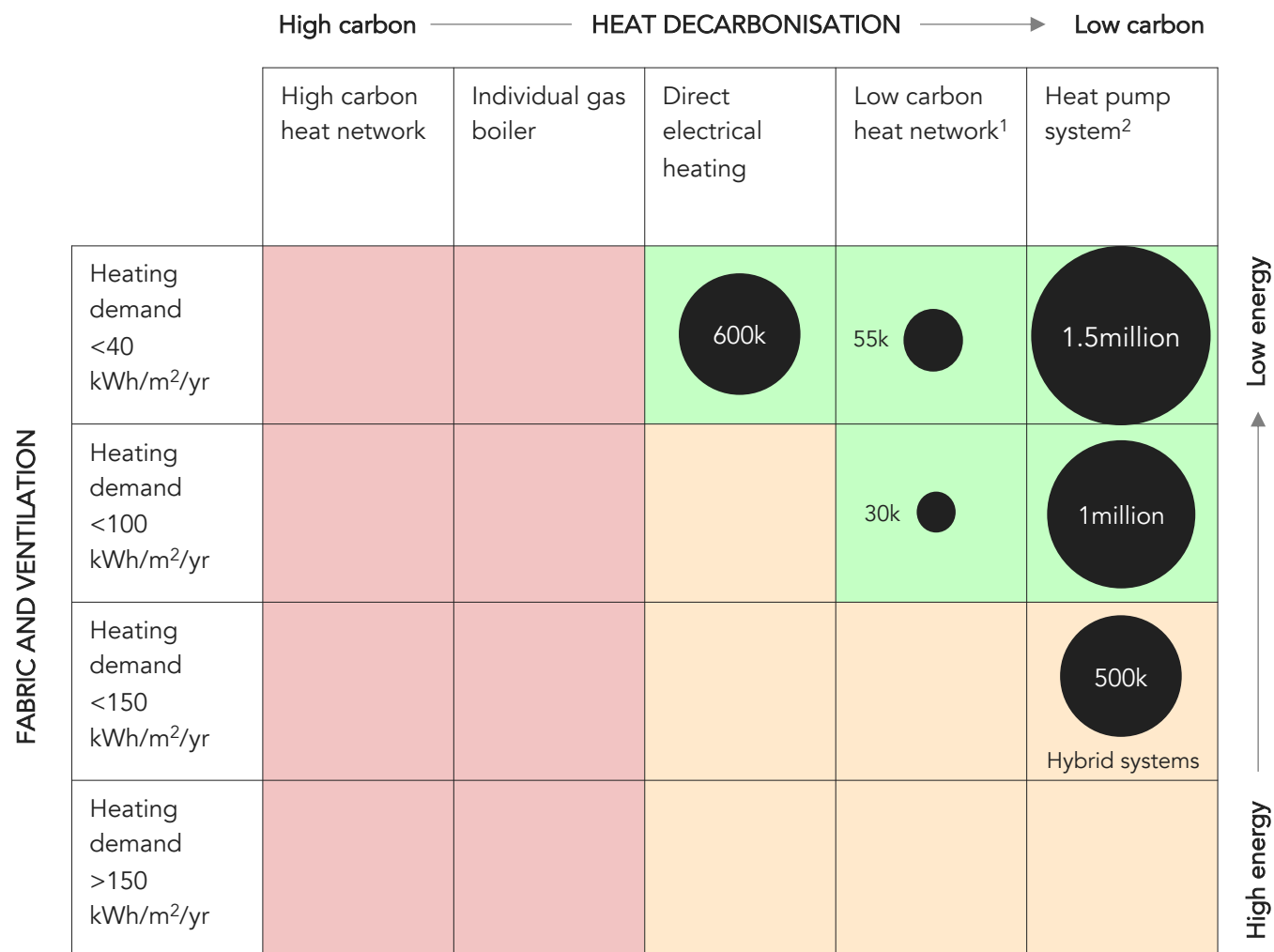
## Estimated retrofitted systems

Based on the Parity Projects data, and following the processes set out in this report, we anticipate London's homes to move towards these positions on the 'Retrofit Map'.

Numbers are approximate. The circle sizes indicate relative numbers but are not to scale

Page 192

- Use of fossil fuels**  
Not compatible with Net Zero.  
The heating system must be changed.
- Low carbon heat but risk of high energy costs**  
A change of heating system may not be required but fabric, ventilation and system should be improved
- Low carbon heat and sufficient level of energy efficiency**  
Compatible with Net Zero



<sup>1</sup> A heat network would qualify as 'low carbon heat network' for the purpose of this matrix only if it would have a lower carbon content of heat (per kWh delivered) than direct electric heating. Any system using fossil fuels and/or with high distribution losses is unlikely to qualify.

<sup>2</sup> Could be an individual or building level heat pump with low distribution losses.



## Whole house approach

The term 'whole house (building) retrofit' has emerged over recent years as a fundamental concept underpinning successful retrofit projects. It recognises buildings as complex systems that require whole systems thinking. Consensus is emerging that whole house thinking should include the following:

- Wide ranging assessment of the building
- Identification of repairs required to make the building 'retrofit ready'
- Evaluation of appropriate energy efficiency measures, taking care to manage risk
- Indoor air quality and the need to design in ventilation systems that deal with winter and summer conditions
- Selection of the most appropriate low carbon heating/hot water system and ensuring that it is compatible with heating load
- Planning for renewable energy generation and energy storage
- Implementation plan over time, taking into account risks and components' lifecycle

## Whole house plans as a lodged resource

Along with the renovation plan which may be implemented over a long period of time, it is crucial to gather and keep digital records of the information gathered on a building and update them. Together they form what is generally referred to as a Building Renovation Passport.

Building Renovation Passports have been adopted in different forms across Europe and were highlighted by the Climate Change Committee as a key component to progress on improving the energy efficiency of buildings in the UK.

The Coalition for the Energy Efficiency of Buildings (CEEB) is currently developing work in this area and London local authorities should engage with it to ensure that their work is consistent and complementary.

**EcoFURB**  
The Low Carbon Homes Service

EcoFurb Plan

**8. Phasing your improvements (continued)**

The measures recommended below aim to significantly reduce your energy use, annual energy costs and CO<sub>2</sub> emissions. This demonstrates a good range of the possibilities available. We can of course limit recommendations to your more immediate needs to fit within your current budget.

Phase 1 Measures	Estimated Costs	Energy Rating	Fuel Bill	tCO <sub>2</sub>
<b>Where you are now</b>	<b>Per Measure</b>	<b>58 D</b>	<b>£1,320</b>	<b>5.73</b>
Low energy lighting	£80	60 D	£1,260	5.66
Block open chimneys	£480	61 D	£1,230	5.55
Install PV system where potential has been identified	£4,170	69 C	£920	5.02
External insulation to pre 1900 solid walls	£16,890	79 C	£580	3.25
Part L insulated doors	£1,560	79 C	£570	3.20
Triple glazing from partial single	£7,240	81 B	£520	2.95
<b>After Phase 1 Measures</b>		<b>81 B</b>	<b>£520</b>	<b>2.95</b>
<b>Package Cost &amp; % Improvements</b>	<b>£30,420</b>		<b>61%</b>	<b>49%</b>

Phase 2 Measures	Estimated Costs	Energy Rating	Fuel Bill	tCO <sub>2</sub>
<b>After Phase 1</b>	<b>Per Measure</b>	<b>81 B</b>	<b>£520</b>	<b>2.95</b>
ASHP (55 degree emitters) with existing radiator central heating and hot water, from C rated gas boiler	£12,000	81 B	£540	0.95
<b>After Phase 2 Measures</b>		<b>81 B</b>	<b>£540</b>	<b>0.95</b>
<b>Package Cost &amp; % Improvements</b>	<b>£12,000</b>		<b>-4%</b>	<b>68%</b>
<b>Cumulative Cost &amp; % Improvements</b>	<b>£42,420</b>		<b>59%</b>	<b>83%</b>

9

Whole house plans have been used by retrofit professionals for a number of years to assess a building pre-retrofit and recommend retrofit measures as part of a coherent plan, either in a single phase or over a long time. The example above is an extract from a whole house plan prepared with EcoFurb.

**Building Renovation Passports** combine a **record of the building attributes** and a **whole house retrofit plan** to allow long term planning, proper sequencing of works and a step by step approach that simplifies the process sufficiently for individual householders to be able to understand and engage with the work needed.

Developed schemes include examples in Germany (Individueller Sanierungsfahrplan, iSFP), Belgium Flanders region (Woningpas) and France (Passeport efficacité énergétique, P2E).



## Developing whole house plan templates: a game changer

Since the first step to retrofitting each home is having a whole house plan in place, taking steps to accelerate the creation of good quality whole house plans could help trigger more and better retrofit. [London local authorities can help facilitate this by developing whole house retrofit templates for key building types within their boroughs, building on the 'solutions based categories' which is summarised on the following two pages.](#)

The whole house plan templates should be based on the most common solution types and should highlight:

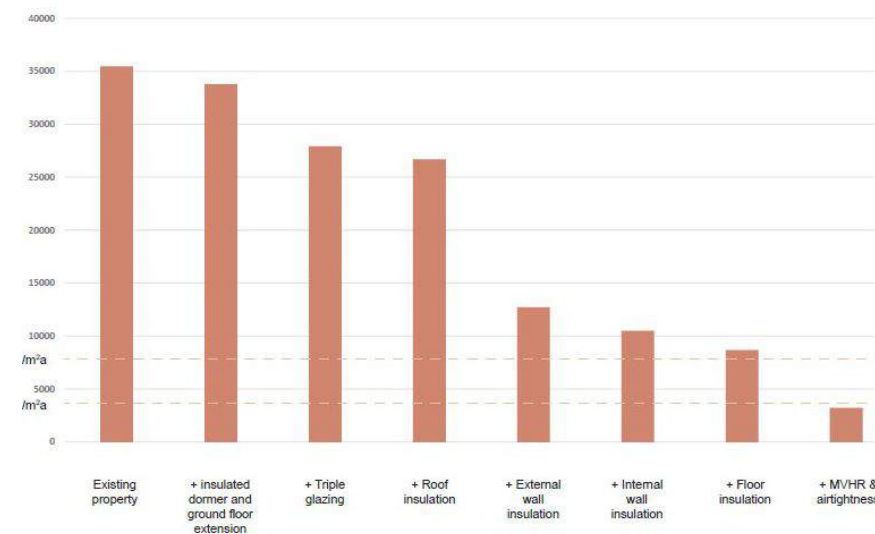
1. Packages of measures that are likely to be applicable
2. Specific risks and how they might be managed
3. Typical detail and interface challenges
4. Potential phasing
5. Expected energy and carbon savings
6. How the fabric measures work alongside the decarbonised heat approach

Templates created at scale would have two far reaching consequences:

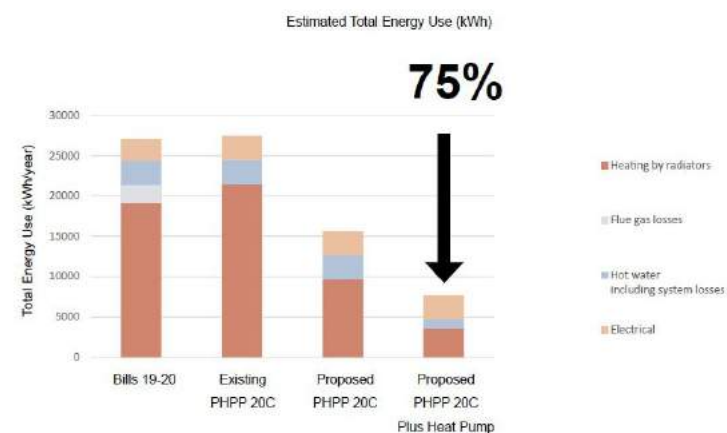
- They would provide homeowners and landlords with a **starting point** so that they can coordinate carbon reduction measures with their ongoing maintenance / extension and other life plans.
- They would help develop a deeper understanding of the costs, measures, skills and supply chain needed within the borough and in London as a whole. This information could be used to help support and build capacity, leverage finance and build a business plan for retrofit.

The templates should cover all types of tenure.

They have the potential to identify common solutions that can help build larger scale of more efficient procurement, inform emerging planning policy for retrofit, test carbon projections and inform future plans.



Extract from a whole house retrofit plan showing how fabric measures affect the heating demand. This can help to sequence the works.



Extract from a whole house retrofit plan showing the how fabric and electrification of heat generation can affect the overall energy consumption of a specific dwelling.



# Categorising the London housing stock to identify key archetypes

## Towards archetypes

An important part of the process towards creating whole house plan templates is to define the key or most common archetypes that occur across London.

## First step: categories

As a step towards this goal, it was considered that breaking down the retrofit work into around 10-15 categories would be appropriate, of which eight are the most commonly found in the London housing stock.

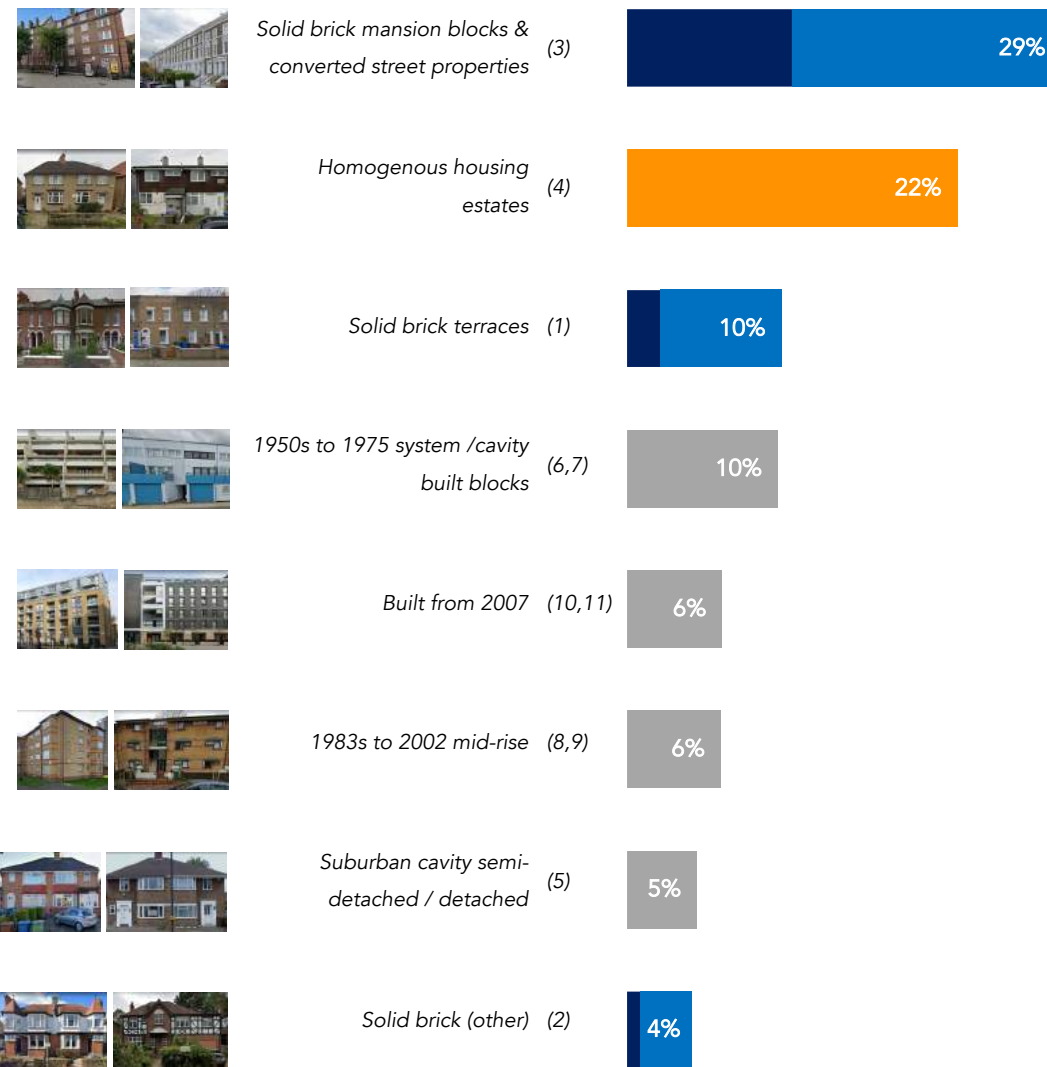
These categories have been arrived at partly by the architectural form and character and partly by considering common groups of retrofit measures. The focus on category by measure rather than architectural style is a helpful way of differentiating for the specific purpose of evaluating retrofit works.

At present the categories are probably still too crude to be used as 'archetypes' to create whole house templates, and further work is required to identify key archetypes. However, the categories already provide a real sense of the housing types that are most important. Notably high rise flats do not represent a significant amount of the stock statistically, while they often are considered to be a key archetype. On the other hand, the 'homogenous housing estates' represent a substantial proportion of the total stock but the break down of construction types within the overall number are perhaps not yet adequately defined.

The image on the right shows the categories that represent the majority of the stock in London (i.e. 92%)

The light and dark blue bars cover solid walled properties. Together, these categories make up 44% of the entire stock.  
The dark blue show portion of homes in conservation areas.

'Homogenous housing estates' cover a further 22% of the entire stock.



Analysis based on Parity Projects Data showing eight categories (some combined) which make up 92% of the London housing stock. The numbers in brackets refer to the categories shown on the next page and in the appendices.



# Categorising the London housing stock across the 33 London local authorities

The adjacent table profiles each of the 33 London Borough by the categories presented on the previous page. The colour coding highlights the most significant categories within each borough. A few initial conclusions can be drawn from this analysis:

1. **Three or four categories dominate the housing stock in each borough.** This provides a strong lead on how the most important archetypes in each location might be identified.
2. **A number of London local authorities share similar profiles:** that may suggest that they should collaborate especially strongly.
3. Around one third of London local authorities have **a significant amount of the 'Homogenous housing estates' category.** There is therefore a significant need and opportunity to investigate this category in more detail and consider how many archetypes and whole house solutions sit within it. Due to the constraints of the data its has not been possible to split into more specific groups yet.
4. **The 'Mansion block / converted street property' is a very significant category.** This category also tends to be focused in a few boroughs, and in areas with conservation status so may also warrant specific collaboration between boroughs. It would be helpful to differentiate between purpose built mansion block and converted street properties as the typical solutions are likely to be different for those two main sub-categories.
5. Many of the other typologies appear to be spread more evenly across London. There would be benefit in exploring which archetypes would be useful on a London-wide basis so that adequate whole house templates and guidance on facilitation can be developed.

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Local authority	3 Solid brick mansion blocks & converted street properties	4 Homogenous housing estates (solid or cavity or system)	1 Solid brick terraces	6 + 7 1950s to 1975 system/cavity built blocks	10 + 11 Built from 2007	8 + 9 1983s to 2002 mid-rise flats	5 Suburban cavity semis/detached with gas boilers	2 Solid brick non-terraces
City of Westminster	86.2%	1.1%	8.3%	11.0%	4.0%	6.2%	0.1%	1.0%
Kensington and Chelsea	71.4%	0.5%	9.7%	6.7%	2.6%	4.5%	0.0%	1.2%
Camden	66.7%	1.3%	5.4%	10.6%	4.4%	4.2%	0.2%	2.1%
Hammersmith and Fulham	56.8%	1.0%	16.2%	5.8%	5.3%	4.2%	0.1%	1.4%
Lambeth	46.7%	6.4%	10.3%	9.6%	6.0%	5.4%	0.6%	3.6%
Brent	36.8%	23.4%	8.1%	6.5%	5.7%	6.3%	4.2%	4.5%
Hillingdon	6.1%	48.6%	2.7%	10.0%	7.0%	5.7%	17.5%	4.3%
Bromley	11.4%	43.2%	5.6%	8.8%	5.4%	4.5%	17.0%	7.0%
Harrow	15.3%	48.2%	4.0%	6.5%	6.8%	4.6%	11.7%	5.9%
Newham	16.7%	16.2%	25.0%	12.9%	6.4%	7.6%	1.5%	1.3%
Waltham Forest	27.0%	19.7%	23.6%	7.3%	4.9%	5.8%	1.9%	3.0%
Haringey	35.9%	9.8%	22.7%	8.6%	4.0%	5.3%	0.5%	3.5%
Redbridge	13.8%	36.7%	15.5%	7.2%	4.4%	5.1%	5.3%	5.3%
Merton	19.8%	27.4%	15.4%	6.1%	6.1%	5.8%	2.4%	6.6%
City	30.3%	0.0%	0.2%	33.7%	8.1%	12.8%	0.0%	0.1%
Wandsworth	37.7%	4.6%	16.3%	13.3%	6.3%	5.6%	0.4%	3.0%
Islington	48.7%	2.0%	7.8%	13.0%	7.4%	6.5%	0.2%	1.0%
Hackney	45.0%	3.4%	9.3%	12.8%	8.7%	7.1%	0.2%	0.9%
Tower Hamlets	19.0%	2.2%	3.5%	20.4%	13.6%	16.7%	0.4%	0.3%
Greenwich	17.8%	21.6%	12.9%	12.1%	9.5%	4.6%	3.6%	3.8%
Barnet	20.6%	28.3%	5.5%	8.3%	8.8%	7.7%	7.5%	8.0%
Hounslow	15.0%	30.4%	7.1%	10.0%	8.7%	7.2%	6.3%	6.0%
Southwark	34.1%	3.6%	8.8%	12.8%	8.2%	10.3%	0.7%	2.4%
Enfield	13.2%	35.8%	12.6%	10.6%	4.2%	8.6%	4.5%	4.6%
Lewisham	31.4%	16.6%	12.2%	8.8%	6.4%	7.1%	1.8%	4.1%
Havering	4.4%	59.4%	2.5%	8.7%	6.9%	3.7%	12.0%	4.6%
Bexley	4.7%	54.2%	6.1%	8.7%	5.0%	5.4%	15.6%	4.5%
Barking and Dagenham	7.8%	52.1%	6.1%	10.0%	7.6%	4.3%	5.2%	1.3%
Kingston-upon-Thames	10.7%	37.2%	3.3%	8.2%	5.0%	5.8%	10.8%	16.9%
Richmond	21.9%	20.1%	14.2%	8.9%	4.7%	4.7%	4.0%	12.4%
Sutton	9.6%	39.8%	4.3%	11.1%	5.9%	7.7%	6.9%	7.6%
Croydon	16.4%	32.7%	12.7%	9.3%	6.6%	4.6%	10.1%	7.5%
Ealing	24.6%	25.8%	10.9%	10.8%	5.8%	5.6%	5.2%	6.6%

Right: Table showing each of the 33 London Boroughs by the categories presented on the previous page. Small groups of different boroughs could work together on a particular category of housing. The category numbers are explained further in the appendices.



# 4.0

## How to deliver:

### Delivery models, skills and supply chain



- Overview of the whole delivery process
- Opportunities for council-owned homes
- Co-procurement of materials and services
- Skills, trades and installation
- Monitoring progress (and success)
- Interesting delivery models (UK and beyond)



## Summary of recommended actions in this area

The key recommended actions and activities in terms of **delivery models, skills and supply chain** are listed in the adjacent table.

Each action/activity is explained succinctly in the following pages.

The full list of actions and activities is provided in a separate spreadsheet which London Councils can develop and add to when this phase of the project has been completed.

### Delivery models, skills and supply chain

#### 7 Review current maintenance programmes and identify retrofit opportunities

#### 8 Facilitate procurement of materials and services at a larger scale

Activity 8.1 > Share procurement for council-owned homes

Activity 8.2 > Develop area-based strategies to enable bulk procurement and delivery

Activity 8.3 > Consider a London-wide retrofit programme for homeowners

#### 9 Enable planning to facilitate low carbon retrofit, including in Conservation Areas

Activity 9.1 > Provide planning guidance to enable retrofit

Activity 9.2 > Provide guidance for planning officers

#### 10 Develop retrofit skills actively across London

Activity 10.1 > Work with partners to develop a spending commitment for retrofit

Activity 10.2 > Develop a London-wide vetting scheme for retrofit suppliers and subcontractors

Activity 10.3 > Upskill Building Control Officers and drive up the quality of retrofit works

Activity 10.4 > Work with existing training schemes and programmes to develop local skills

Activity 10.5 > Create London retrofit training centres for existing and aspiring tradespeople

#### 11 Set up a clear and consistent system to report and monitor progress (and success)

Activity 11.1 > Agree metrics and report retrofit progress between councils



# Delivering a home retrofit: overview of the whole process and key opportunities

Retrofit work at any scale is challenging and the delivery and supply chain constraints could be the biggest hurdle to overcome in order to achieve the objectives set out in this Action Plan. This section looks at how London local authorities should intervene to have an impact on the delivery process.

## Need for a planned whole building approach

Improvements to energy efficiency might happen in lots of different ways. However in order to successfully deliver a retrofit, a coordinated approach is needed for the whole building or group of buildings (see Action 6 on mapping each building's journey towards lower energy costs and Net Zero). The London local authorities should set an example and ensure that a whole house approach is taken on all projects under their control.

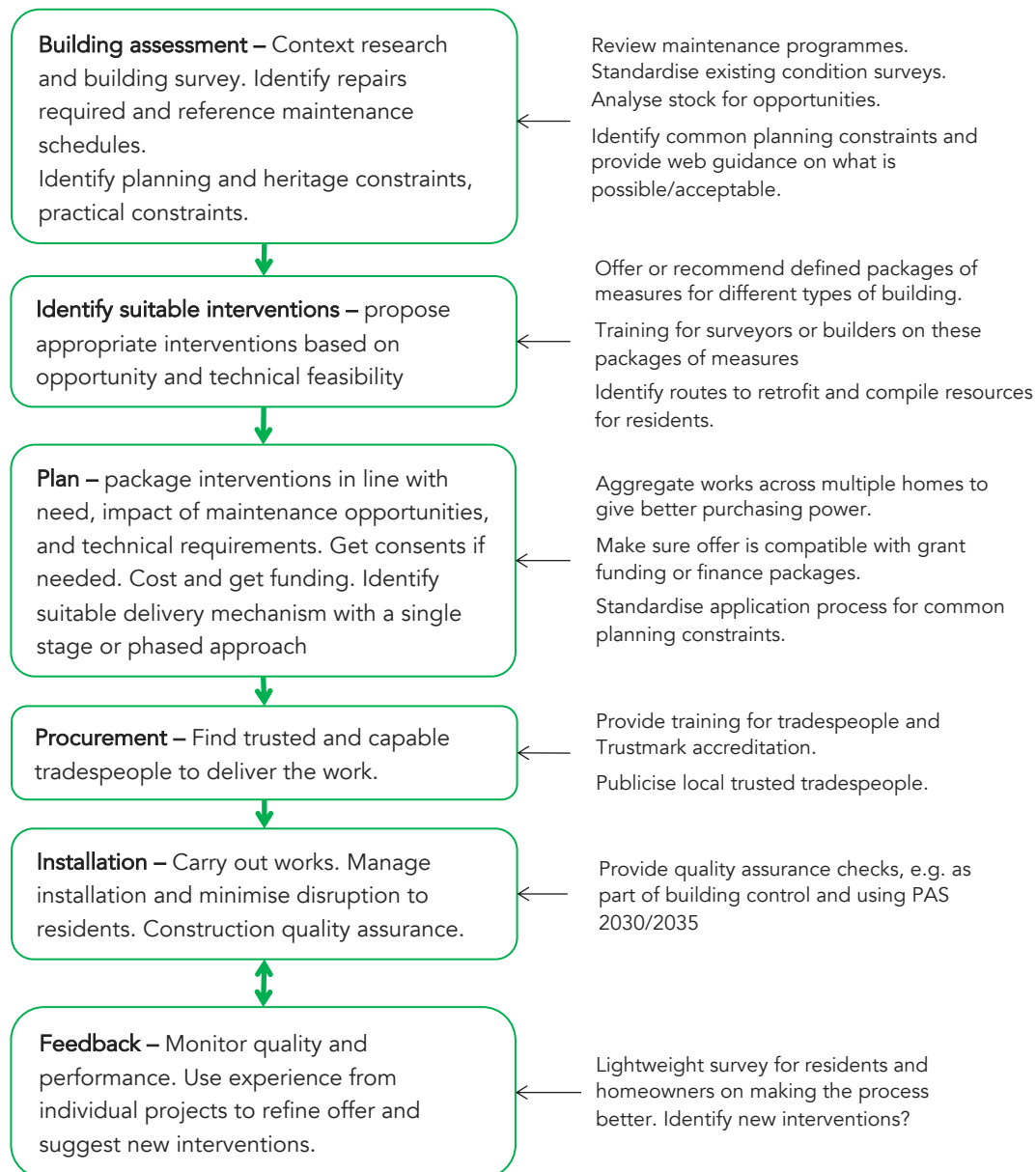
The whole house plan will be unique to the building but could be based on whole house templates derived from the Parity Projects Pathway report stock analysis and key London stock archetypes. For example, Warmer Sussex uses recommendations from a similar analysis to offer a developed plan of work through Retrofit Coordinators.

Funding or delivering one element for multiple homes would need eligibility criteria to check the measure fits into the individual plan for each home.

## Opportunities for London local authorities to help

A summary of the process and some specific opportunities for councils to have an impact is summarised to the right. Recommended actions and activities are explored and summarised in more detail in this section.

### Example retrofit process





## Action 7

# Review current maintenance programmes and identify retrofit opportunities

### Review planned maintenance and upgrade programmes

London local authorities have ongoing regular and planned maintenance programmes for their own housing stock. They generally cover regular maintenance, housing upgrade and more major improvement works. Current or upcoming projects may be missing opportunities to contribute to reducing carbon emissions and improve energy efficiency, or even making the situation worse. **London local authorities should therefore review their current maintenance and upgrade programmes as soon as possible to identify projects where opportunities are being missed. These reviews should recommend which changes in scope of works could contribute to the retrofit programme.**

### Seek synergies with other housing programmes and priorities

The review should include other housing programmes to cross check changes that could trigger retrofit work to reduce total cost. For example work under the Housing Health and Safety Rating System (HHSRS), Building Safety Programme (BSP) and the Decent Homes programme should seek to find common ground and synergies.

### Help others update their maintenance programmes

Maintenance programmes between councils and also other landlords (including Registered Social Landlords (RSLs)) are likely to be similar. The first London boroughs to undertake a review of their maintenance programme against the recommendations of the Retrofit London Housing Action Plan should share the toolkit/framework with other London local authorities and RSLs. The framework/toolkit should:

- list all types of maintenance works that should be included in the review;
- identify an appropriate point in a project where it is not too late to change. For example this could be pre-construction start, or pre-installation of the part of the works in question.

Maintenance item	Lifetime	Retrofit measures to <b>action</b> or consider
Roof repair (tiles, flat roof)	~30 years	<ul style="list-style-type: none"> <li>• <b>Roof insulation and airtightness</b></li> <li>• <b>Airtightness connections to surrounding elements</b></li> </ul>
External render or paint	<10 years (cement) 25 years (BBA certified)	<ul style="list-style-type: none"> <li>• <b>External wall insulation</b></li> <li>• Replace windows while there is access</li> <li>• Internal wall insulation while there is access and disruption</li> </ul>
Windows & door replacement	10 years guaranteed, typically 20-30 years for new windows.	<ul style="list-style-type: none"> <li>• <b>Replacement with triple glazed windows or best available for appearance constraint.</b></li> <li>• <b>Ventilation approach.</b> Recommend new windows don't have trickle vents, move to MVHR.</li> <li>• <b>Airtightness connection to wall and floor.</b></li> </ul>
Replastering wall or ceiling	~20 years	<ul style="list-style-type: none"> <li>• <b>Internal wall insulation</b> (if appearance constrained)</li> <li>• <b>Roof and wall airtightness</b></li> </ul>
Kitchen replacement	~5-10 years	<ul style="list-style-type: none"> <li>• <b>Ventilation strategy.</b> Replace cooker hood with recirculation type or careful direct extract if strategy is for MVHR, or continuous extract as part of MEV system.</li> <li>• <b>Insulation to kitchen floor</b> (if ground floor)</li> <li>• <b>Internal wall insulation behind units</b></li> </ul>
Boiler	10 - 15 years	<ul style="list-style-type: none"> <li>• <b>Replace with heat pump system</b></li> <li>• Improvements required to reduce heat load.</li> </ul>
Extract Fan/Cooker Hood	~5-10 years	<ul style="list-style-type: none"> <li>• <b>Ventilation strategy.</b> Replace cooker hood with recirculation type if strategy is for MVHR, or continuous extract as part of MEV system.</li> <li>• Induction hob and all electric cooking.</li> </ul>
Electrical Wiring	Tested every 10 years (homeowner) or 5 years (landlord)	<ul style="list-style-type: none"> <li>• <b>Spare capacity for heat pump</b></li> <li>• Metering including submeter for electric vehicle charging and heating</li> <li>• Spare capacity for electric car charging</li> </ul>

Example opportunities for reducing carbon emissions in current maintenance programmes



## Action 8

# Facilitate procurement of materials and services at a larger scale

### The benefits of connecting a fragmented market

A key challenge with retrofit is how dispersed the work is, and the bespoke nature of each project. Finding and connecting common elements of projects would help delivery and financing through:

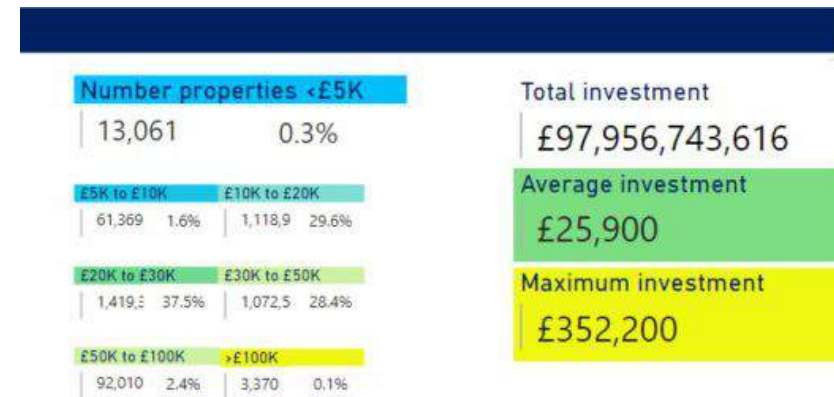
- Access to larger contractors who might only quote for projects above a certain contract value
- Shared project management, consultancy and quality oversight
- More consistent workforce learning and improving between similar work
- Labour buying power through larger contracts
- Product buying power through increased quantities of material
- Reduced administration or overhead costs through shared contracts

### Opportunities for London local authorities to make links

Councils are well placed as a trusted local organisation to facilitate procurement of materials and services at a larger scale. This could be directly working with homeowners and landlords, or by supporting other organisations or community groups to do so.

The main mechanisms for joining the various types of work could be:

1. Councils leading the way by comparing works they are carrying out on their own properties and coordinating procurement.
2. Group buying similar work as one package. Councils could help this through:
  - Mapping and sharing planning data on opportunities (see Activity 8.2)
  - Actively helping homeowners and landlords to find others needing similar work, or actively setting up opportunities for homeowners (see Activity 8.3)



Estimated total investment for Net Zero Pathway for all London properties from Parity Projects Pathways Report for London Councils v1.4.

69%

Projects that have a total works value of less than £30,000 if completed in one phase. It is more likely that single domestic homes will have multiple packages of work spread over a number of years.

£8,600

The average project value per home assuming works to a typical home are carried out in three or more phases. The market is very fragmented and aggregation represents a significant opportunity.



## Working together is a no brainer

To meet Net Zero carbon targets, all London local authorities will need to embark on a substantial investment programme to retrofit existing homes.

Although there are always unique cases, the homes and types of work across London are actually similar. This provides significant opportunities for sharing procurement, but also design and specification for common types of work. And councils are experienced clients who are well placed to develop efficiency and effectiveness further by working together.

In some cases an individual borough will have sufficient scale of work to procure directly, for example work to a whole block or estate. However for less homogenous property types it is much harder to coordinate and working together would be beneficial.

## Page 202 Opportunities for sharing work

**Design and specification.** Sharing the development of a detailed design and specification that can be repeated. For example, internal wall insulation or the development of a whole house template for a particular archetype.

- **Smaller pieces of work**, for example pooling work on vacant properties into a larger contract across neighbouring boroughs.
- **Quality management and feedback.** Setting up a forum for project managers and site teams to share quality issues and experiences for future projects.
- **Frameworks** are a common way of navigating procurement and offering a pre-selected group of contractors for a particular area or work package. A retrofit framework could be developed, or built on past frameworks (e.g. GLA's RE:NEW) or existing ones (e.g. LHC's energy efficiency measures and associated works).

Any shared procurement should also seek to continue the councils' ambition to work with SMEs in the local area and assist in the development of a local, skills and sustainable supply chain.

### Learning from the Decent Homes Programme

The Decent Homes programme had a similar scale and shared ambition across councils. Much of the knowledge and experience from this programme still exists within councils and in many cases is still operating as a home upgrade programme or to implement the Housing Health and Safety Rating System (HHSRS).

Councils should set up a forum to share experiences and lessons learnt to inform the retrofit roll out.

### The retrofit revolution and the Retrofit Centre of Excellence

The Mayor has recently announced a 'Retrofit revolution' that includes a Centre of Excellence for Retrofit to help social housing providers including London local authorities to access funding and share resources. This could be part of a forum for sharing retrofit procurement and experiences. Another initiative is the Mayor's new Innovation Partnership which will link up housing providers and builders through all stages of home retrofitting, from planning through to large-scale delivery



The RE:NEW framework was set up by the Mayor of London. It no longer operates, but the structure and ambition could be replicated and improved for use by London Councils. LHC's energy efficiency framework is an existing resource.



### Mapping and sharing planning data on opportunities

The target measures and actions for each home should be accompanied by area-based planning to maximise the efficiency of delivery and allow strategic planning with delivery partners. Bulk procurement could apply to preparation and planning as well as the works themselves, for example the production of whole house retrofit plans. Area planning will also help communicate the intention and potential impact to leaseholders and homeowners.

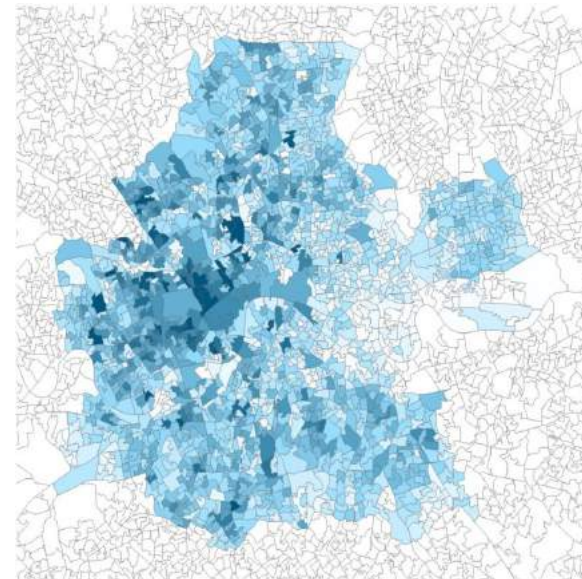
Area-based retrofit planning should help identify:

- **Streets and areas which lend themselves to grouped approaches** for a whole house strategy, or individual elements. For example streets or estates of repetitive house types or element types. This should apply to the council-owned stock but also to areas of mixed tenures which could then be targeted by engagement campaigns to encourage the various owners to pool together. See next page for example categories.
- **Conservation areas** which will benefit from specific guidance and possibly retrofit plan templates. Councils could procure guidance on this together, or at least ensure they share lessons across boroughs.
- **Socio-economic factors** which could help prioritise intervention, for example, areas of high fuel poverty, poor health outcomes, or poor air quality, where retrofit interventions could deliver multiple benefits and for which additional funding sources may be available.
- **Areas served by different heating technologies.** If an area is to be served by a sustainable low carbon heat network, it should be identified precisely (safeguarding large proportions of the borough can be over ambitious and ultimately misleading).

This area-based retrofit planning should also integrate into wider area-based energy planning, as recommended by the Climate Change Committee and Ofgem and for which guidance is starting to be available from the Energy Systems Catapult (<https://es.catapult.org.uk/reports/local-area-energy-planning-the-method/>).



Where possible delivering whole house retrofits of an entire street should be the goal. This is the model used by Energiesprong, but can be a challenge due to tenure and desirability  
(© Google Streetview – Southwest London – groups of similar houses)



The Parity Projects Pathways report for London Councils provides mapping for some types of work across Lower Super Output Areas (LSOAs). This type of analysis at a higher resolution could start to show where similar work packages existed between boroughs.




Different housing types and tenure are likely to be more suited to different delivery mechanisms.

Some of these are already being investigated at scale and this table provides a broad categorisation of delivery mechanisms, suitability and how they might scale.

**London local authorities should pick the most appropriate route for each context, and prioritise whole building retrofit where possible.** Councils should not permit piecemeal renovation of individual elements unless there is a plan in place for how the work fits with the whole retrofit.

For more information about the examples, please refer to the following pages 85 and 86.

Page 204  
Increasing preference

Potential delivery route coordinated by a Retrofit plan and identified in area plan.	Building type suitability identified in area plan	Tenure suitability identified in area plan	Potential for scaling	Examples
<b>Whole building refurbishment all at one time.</b> Between tenancy or ownership, temporarily decanting residents, or with residents in place.	Distinct housing archetypes that exist at scale.	All, but requires coordination between residents and shared contracts. More suited to multi-residential freehold or estate properties. Leaseholder engagement is critical.	Medium, limited to repeatable house types and standardisation. Private landlords may be unlikely to opt for this approach. Already being explored in London.	Energiesprong, Retrofit Accelerator: Homes, energy performance contracting
<b>Phased packages of measures delivered across a large number of homes.</b>	Distinct building features that exist at scale.	All, but requires coordination between residents and shared contracts.	Large, but requires aggregation across multiple homes. Familiar to landlords. No large scale success to date.	Solar together, Retrofit Works
<b>Phased packages of measures delivered home by home.</b>	No consistency required. Houses, harder for flats.	More suitable for owner occupied or smaller landlords	Large, but more dependent on the market and supply chain.	Green Home Grant, Carboncoop, Warmer Sussex
 Piecemeal intervention with an element by element approach based on opportunity or funding. No retrofit plan.	Not recommended	-	-	ECO grant funding, Green Deal



Many urban streets have multiple homes sharing a similar layout, construction or building features. If groups of individuals can be brought together to procure the same intervention – window replacement, for example – on multiple properties, this will allow more effective procurement and more efficient installation works than if each house is approached separately.

**London local authorities should consider acting as ‘aggregators’ to pool work of a similar nature and offer packages of work to contractors and investors.** This could be similar in principle to the Solar Together programme. The additional complexity of retrofit measures should be considered as it is likely to represent a significant challenge but a London-wide retrofit programme for homeowners could and should have the following advantages:

- Trust:** the combination of Council-led offer with technical support (webinar, email support) from supply chains is very powerful
- Ease and clarity**
- Planning:** working with planning teams upfront e.g. ‘in this area, we have agreed with planning and conservation officers that it’s ok to do x under conditions y & z’ would add to the appeal of the programme
- ✓ **Stepped process:** free step 1, relatively low deposit at Step 2, “get out” options afterwards
- ✓ **Community:** residents could be told how many people are taking part, which builds a sense of community and reassurance. This could be taken further by creating local networks or forums.

Community-led investment could also be used and promoted for pooled work. **London local authorities should liaise with local suppliers and community groups** to promote energy efficiency amongst homeowners, landlords and leaseholders, and to bring together buying power for products and provide access to larger providers and contractors.



Example outline process for aggregating a package of works across multiple homes

**Solar together** is an example of a model to increase the project scale for roll out of building mounted renewable electricity generation from solar PV.

It offers group buying for solar panels and battery storage to homeowners. The programme is operated by iChoosr and is currently active in London as well as Essex, Hampshire, and Warwickshire, with emerging programmes in seven other counties. It provides more competitive prices for solar PV and impartial information and management to ensure quality of the system. A retrofit version of this initiative could use a similar model.



Learning from Solar Together to create “Retrofit Together”



## Action 9

# Enhance planning to facilitate low carbon retrofit, including in conservation areas

### Positive action in planning

The planning policy requirements for energy efficiency in new construction have improved over time. However, the same has not happened for works to existing buildings requiring planning consent. Planning policy should seek to highlight the opportunities available for existing buildings, and support projects that include improvements in energy efficiency.

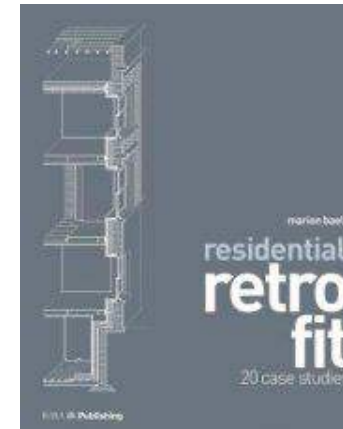
Permitted Development rights and local planning special guidance could be used to give more support to energy efficiency. Current guidance focuses on extensions or restrictions, not areas that are positively viewed by the planners.

### Environmental and heritage conservation hand in hand

Low carbon retrofit of heritage and traditional construction buildings is possible; there are a growing number of examples which show it can be done, and the PAS retrofit framework provides a risk assessment methodology and supports a growing supply chain.

Well-planned retrofit programmes can also actually contribute to conservation by incorporating maintenance and repair, and offer a new lease of life to buildings. They limit the risk of under-heating by occupants worried about energy bills, with the associated risks of fabric degradation. By being more comfortable, buildings are also more likely to remain valuable and well looked-after in the future.

Retrofit projects to historic buildings have so far faced an uphill struggle at planning, mainly due to the lack of policy clarity in support of energy efficiency measures. The 'significant weight' placed on buildings with heritage value in the National Planning Policy Framework must be balanced with the 'public benefit' of energy efficiency improvements. Local policy aimed at encouraging low energy retrofit and advice and support on how to do this responsibly and with appropriate care could help expand a market where there is growing demand.



© Marion Baeli, PDP



*It can be done: The Technology Strategy Board "Retrofit for the Future" programme, undertaken over 10 years ago, deliver 80% carbon reductions on 37 pilot homes. This included 11 pre-1919 homes which demonstrated that heritage sensitive retrofit measures can deliver the scale of carbon reduction we need to see happening more.*



*Recent leading-edge examples of considerate and ambitious retrofit: Grade I Trinity Student Halls, Cambridge (left), and Grade II early Victorian home in Clapham, London (Harry Paticas). Both include the application of internal insulation, with attention to moisture movement and monitoring of interstitial moisture level. The Clapham House achieved AECB Silver certification and is considered as exemplar by Historic England.*



### Clear guidance on what is possible

'Requiring planning' is seen as a significant barrier to retrofit. Existing policy is not necessarily understood, could dissuade a homeowner/landlord from progressing, and at worst directly prevents retrofit from happening through planning refusal.

### London local authorities and the GLA should work together to put in place planning guidance to actively promote the process for key retrofit improvements.

In the short term this could be through Supplementary Planning Guidance or Planning Advice Notes at the borough level. Examples for this already exist and could be used as very good starting points: Camden council has a general Retrofit Planning Guidance note, and Brighton & Hove has detailed Planning Advice Notes on external wall insulation and conservation areas.

### Directly addressing heritage concern and value

Conservation area assessments do not mention retrofit or energy efficiency. Councils should clarify acceptable interventions in each conservation area, such as where external wall insulation is an acceptable approach, for example to the rear of properties, or to some stucco/rendered properties with certain conditions on detailing.

### Provide a simple application process for key interventions

Some interventions for retrofit require a change to the external fabric of the building. Where this is known and is not covered by the planning system, London local authorities should seek to create standardised and simplified processes for applications. Examples of where retrofit could require planning are given opposite.

**Removing unused chimneys** which, even when blocked, are a large air leakage path and often a large source of moisture ingress. Chimneys that are not protected or critical to a street scape should be decommissioned and removed wherever possible.

**Changes to window frame widths or removing glazing bars** is often necessary to accommodate improved window performance. Glazing bars significantly impact window performance by being a thermal bridge through the glass and reducing useful solar gain.



**Ventilation grilles** are needed in external walls to provide supply and extract air and improve air quality. The MVHR location is important, sometimes the best location is on a street facing wall.



**Space for external wall insulation and roof insulation** in the pitch may require an overhang to the street or neighbour, or an increase in ridge height. Providing clear process for applying to highways, party wall surveyors, and even local permitted development for ridge height increases would make rolling out retrofit easier in many situations. This would need consultation with heritage officers.



### Best practice is changing quickly

State of the art in sustainability and retrofit best practice is changing quickly and is likely to continue to do so as momentum builds to address the climate emergency. It can be challenging for sustainability officers, let alone other specialists such as conservation officers, to stay on top of the latest thinking and solutions. Building partnerships between departments within the council specifically on retrofit would be very beneficial.

### Using the planning process as a positive opportunity

Questions and comments at pre-application meetings or in planning feedback carry a lot of weight while consequential improvements required by the building regulations are often not considered or given sufficient weight. There is therefore a substantial opportunity for the planning process to influence positively the scope and ambition of projects involving retrofit (e.g. extensions, change of use).

### Providing planning officers confidence and support

**We recommend that London local authorities develop internal guidance and knowledge transfer mechanisms on retrofit**, including:

- Supporting a network of housing delivery, energy and conservation planning officers from all boroughs, to share concerns, solutions, common questions. The network should have access to advice from the energy efficiency and heritage experts.
- Disseminating existing guidance and case studies.
- Training and events tailored to planning officers, on the topic of energy efficiency and low carbon solutions.
- Bringing in external advice for example on design review panels.



Research carried out by Historic England and others has helped to inform advice and guidance on improving the thermal performance of traditional windows. © Historic England

*Measures such as internal wall insulation and secondary glazing have been poorly implemented in the past, leading to fabric damage, and as a result they are viewed cautiously by conservation officers who may often recommend their refusal. However, competent professionals understand how and when such measures can be successfully applied and the right type of materials.*

#### Example resources for planning officers

- AECB Retrofit standard and Carbonlite Retrofit course
- Historic England: How to Improve Energy Efficiency
- LETI Climate Emergency Retrofit guide
- London Borough of Camden Energy efficiency and adaptation (2021) and Retrofit Planning Guidance (2013)



## Action 10 Develop retrofit skills actively across London

### Tradespeople must have confidence in the retrofit market

Several schemes to scale up retrofit from central government have had enormous promise, been heavily publicised and encouraged consumers and the supply chain to scale up and invest. They have then been scrapped without warning. The potential for the retrofit market has been discussed for several years, without substantial evidence of growth. **The confidence in the retrofit market from a supplier and consumer perspective is therefore very low.** The Pathway analysis by Parity Projects reflects this low confidence, with the estimated total number of tradespeople involved in retrofit still lower than its peak before 2008. In particular the number of general builders and insulation specialists is very low.

### Actively encourage retrofit skills in London

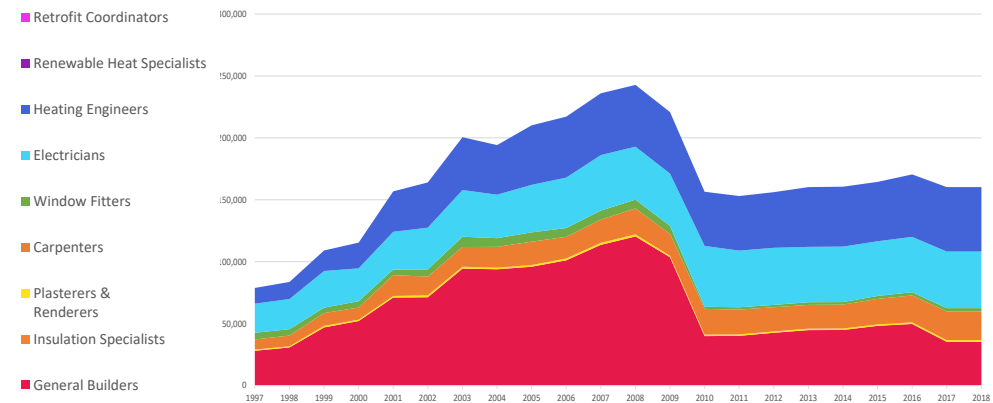
There is a large appetite for home improvement, and a significant opportunity to use the current 'build back better' intentions to promote and accelerate a retrofit skills agenda. To capitalise on this and deliver good quality retrofit, there is a need for skilled tradespeople.

### Focus on local SME, general builders and insulation installers

SMEs are often cut out of commercial retrofit work. Market engagement should encourage local SMEs, particularly in the largest categories of trades needed. For example giving preference to contractors working with local trades should continue and should be extended to expecting main contractors to provide training to subcontractors. This could focus on a particular insulation installation, or Trustmark registration.

### Develop the Retrofit Coordinator role

Retrofit Coordinators are a new and important profession that can provide oversight and enable retrofit work. Creating a clear call for Retrofit Coordinators could drive other parts of the market.

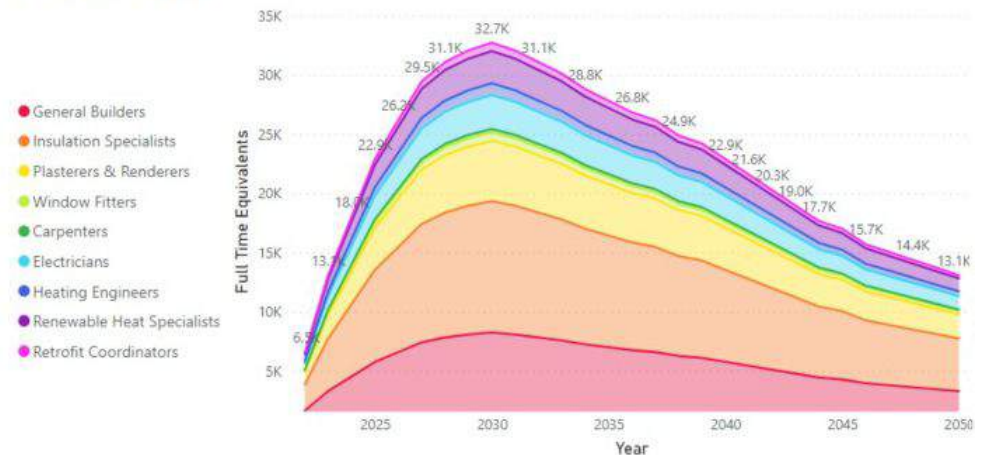


*Estimate of number of tradespeople involved in retrofit nationally from historic data (1997 to 2018).*

*The proportion of general builders and insulation specialists is very low and still below the peak in 2008. If anything it is currently falling. The Retrofit Coordinator role did not exist until 2019.*

*(Source: Parity Projects Pathway report for London Councils)*

FTE by trades by year



*Forecast number of tradespeople required to achieve a net zero retrofit in London.*

*The peak number of general builders, plasters and insulation installers is 50% of the entire current national pool.*

*(Source: Parity Projects Pathway report for London Councils)*



### Giving confidence to the market with a clear pipeline of work

London local authorities and partners should work together to stabilise the retrofit market locally to buffer the 'boom and bust' central government grant schemes where they can, and help develop the supply chain.

**By working together to develop a spending commitment and a timeline for completing retrofit works, London local authorities and others, for example Housing Associations, could stimulate supplier investment in training and scaling up. This would benefit the whole market locally and improve skills.**

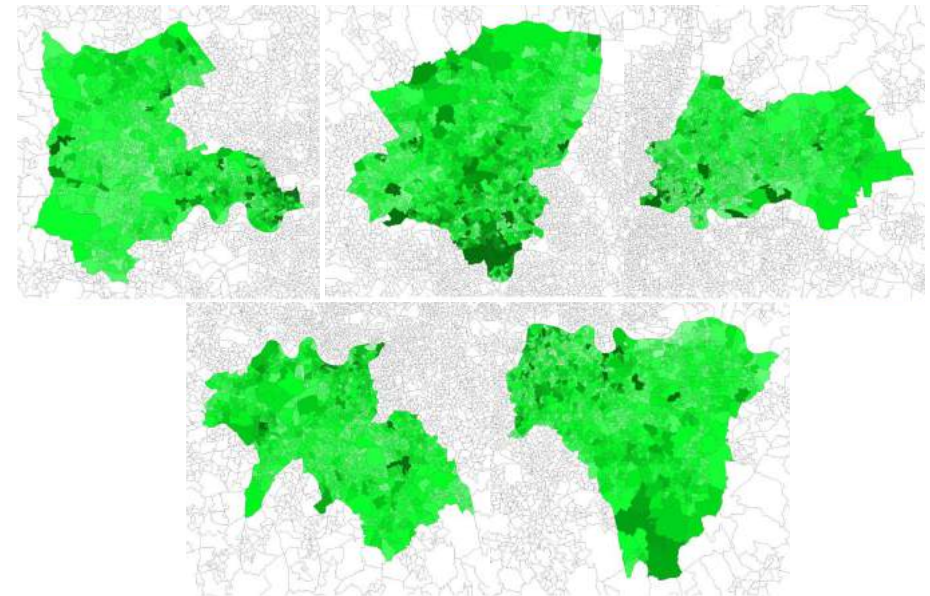
An example of the approximate investment level has been taken from the parallel work completed by Parity Projects. The exact amount and timescale would need to be decided by those involved.

Any publicity should highlight the skills and qualifications that prospective contractors would need, for example being Trustmark registered. It should also require larger contractors to commit to not only employing local workforce and SMEs, but also training them to the required level.

£27m

Investment in Retrofit  
by London Councils  
delivered over

10  
years



*The total investment by LSOA area for all properties including council-owned.*

It is not possible to separate out the council-owned properties, but the data provided by Parity Projects shows spending on retrofit is needed in all areas with a relatively even distribution across London.

(Source: Parity Projects Pathway report for London Councils)



### Construction quality is generally poor

The general quality of retrofit work in the UK is poor. There is no entry level barrier to work in the domestic retrofit market, anyone can advertise and there is no formal qualification or skill level required. There have been some poor examples, including retrofit led at scale by local authorities.

Poor construction quality is particularly noticeable in London where the large demand, size and transience of the market means that trades can avoid the impacts of a poor reputation or bad review. In addition, the feedback from clients is often based around experience such as punctuality, cleanliness and communication – rather than construction quality.

### Vetting contractors for retrofit skills

Pointing to existing registration schemes and a transparent review process could provide a way of recognising contractors who are working on retrofit projects, which would carry less risk than direct recommendation of specific companies. This could be by partnering with existing consumer websites and through the Trustmark endorsement scheme (see activities 10.3 and 10.4 for more information on this scheme) or through co-op vetting.

### Trades get most work through recommendation

Typically through word of mouth, local message boards, or specialist websites. London local authorities should consider engaging with these platforms and actively signpost tradespeople who reach Trustmark accreditation or who have worked successfully on council retrofit projects.

Government endorsed register of tradespeople



Commercial tradesperson recommendation services. Checkatrade is the most established in the retrofit sector.



Social media websites where more organic recommendations often take place



Homeowners are unlikely to go through registered schemes to find a builder and are more likely to rely on consumer lead networks or local recommendation. These support individual installers but do not provide guidance on an overall strategy for retrofit. London Councils could promote the scheme provider as a source of trusted trades in the local area.

### Examples of ways to engage with trade recommendations

- Publishing lists of local retrofit companies used by the council. Ensuring that they register with Trustmark.
- Leaving a review on Checkatrade or similar for all tradespeople who work for the council. This should be part of the council standard procurement process.
- Working or partnering with existing consumer websites such as Checkatrade or similar to encourage them to include retrofit skills as part of their trade categories.



## Action 10 Activity 10.3 > Upskill Building Control Officers and drive up the quality of retrofit works

### Quality checks of design and on site

Local authority building control could play a key role in quality checking retrofit. Building control can be under-resourced, however by offering an additional service to give homeowners piece of mind there may be an opportunity to increase the role of professionals who are already experts in residential construction.

**London local authorities should provide training for building control officers around energy efficiency and retrofit. They should investigate offering an enhanced service through local authority building control to act as a retrofit quality check.**

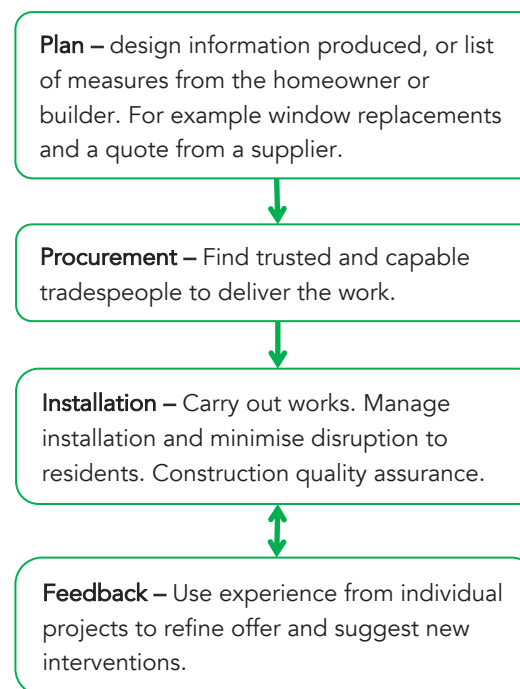
The service could offer continuity from end to end and oversight of the works. It could be supplementary to the Retrofit Coordinator, or ensure quality where a Retrofit Coordinator is not involved.

### Learning and improving based on project feedback

Bringing monitoring into the process is critical for successfully rolling retrofit out at scale. Feedback and transparent continuous improvement will reassure residents, tradespeople and building owners that the council is in this for the long haul. This could also help to minimise the impact of inconsistency from central government.

**London local authorities should carry out a post project review on all council housing retrofit projects.**

#### Example retrofit process



#### Example check by Council service

Design information review to provide impartial advice on level of performance products achieve compared to market, key considerations, key additional work that will be needed (for example ventilation).

Review contractor tenders and suitability for the works that have been proposed. Preference for specialists with clear experience carrying out the work.

Construction site quality visits with feedback to the builder and client. Could be part of or supplementary to Building Control visits.

Collate lessons learnt from projects to share publicly or with future clients.

Provide contractors with feedback on improving installation.

Ensure resident experience is captured and considered for future projects.

Contact residents 12 months after completion to ask about energy bills and home experience, and to catch any issues.

*Part of an example retrofit process showing how a council service could provide quality assurance to homeowners or landlords undertaking improvement works.*



## Action 10 Activity 10.4 > Work with existing training schemes and programmes

### Specific skills required for home retrofit

Local skills should be developed in retrofit specific trades. The approach to retrofit has to be adaptable to the variability between individual homes. Every home will need some work by variously skilled individuals, which represents excellent local job opportunities.

### The Trustmark quality scheme

Trustmark is the government endorsed scheme for quality control and registering trusted tradespeople for Retrofit. To register as a provider, tradespeople need to sign up through a 'scheme provider' and achieve a Retrofit Coordinator Level 5 Diploma.

Future grant funding and delivery is highly likely to require Trustmark accreditation. One of the reasons the Green Home Grant voucher scheme failed is a lack of registered providers. Training should therefore focus around increasing the number of Trustmark registered providers across London.

Council projects should require Trustmark qualifications for contractors and designers.

London local authorities should either partner with a current scheme provider to provide tradesperson training, or set up a dedicated scheme provider to oversee training, marketing of trusted trades, and quality assurance on projects.



RETROFITWORKS  
BUILDING EFFICIENCY TOGETHER



*Some example Trustmark scheme providers including companies, suppliers and product associations. London local authorities could create a scheme provider to serve the London area, or partner with an existing scheme provider. Retrofitworks have already carried out significant work in London and others are also very active. The full list is available here: <https://www.trustmark.org.uk/ourservices/scheme-providers>*



THE  
RETROFIT  
ACADEMY  
CENTRE OF EXCELLENCE



*The Retrofit Academy and Green Register (Futureproof) are current course providers for Retrofit Coordinators. The AECB have an excellent existing retrofit course and are launching a coordinator course in the summer. One or more of these organisations could be a key partner to set up courses in London colleges.*



## Action 10 Activity 10.5 > Create London retrofit training centres for existing and aspiring tradespeople

### Qualifications required for access to grant funding

Following industry lobbying, the publication of PAS 2035 and the introduction of Trustmark, it is highly likely that any future grant funding scheme will require Trustmark registration and a retrofit qualification. These qualifications also provide the Councils, as clients, a way of distinguishing between trades with Retrofit experience. London local authorities should positively promote these qualifications ready for future grant funding.

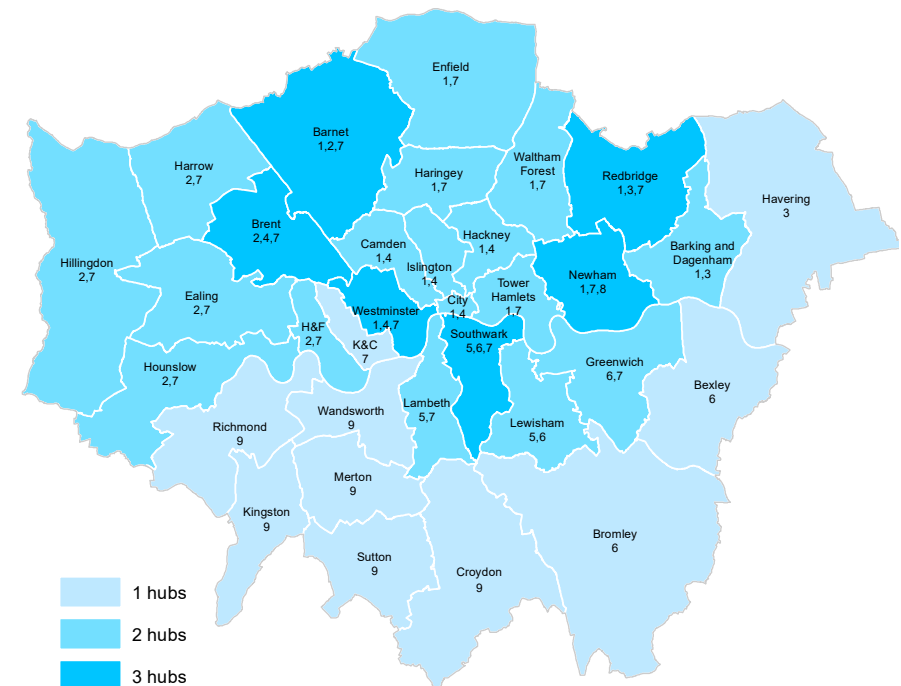
### Making training available in London

There are currently no colleges offering Retrofit Coordinator training in London. Existing colleges and training programmes should be made aware of the demand for retrofit qualifications and skills needed including:

- General knowledge on existing buildings and construction types
- Specialist fitting skills such as heat pump installers and window fitters
- Insulation installers
- Risk assessment, project management and the Retrofit Coordinator role.
- Trustmark accreditation.

The Mayor's Construction Academy hubs are a Mayor of London initiative to improve skills in the construction sector and are delivered by existing colleges. They already teach many of the skills required, but are typically focussed around new construction. As part of the London Recovery Programme's Good Work Mission, the Mayor will establish a number of similar hubs in different sectors, including the green economy.

London local authorities should work with the Mayor's Academy hubs and Adult Education Budget (AEB) funded providers to ensure suitable retrofit training is available locally. The providers could partner with existing training organisations using existing courses as a basis.





## Action 11 Set up a clear and consistent system to monitor progress and success

With the urgency and complexity of retrofit there is a significant risk of failure or repeated mistakes. It is therefore critical that a feedback mechanism and sharing of experiences is built into any retrofit programme. It will require resources and funding, but we consider that the benefits and value justify them.

### Monitor improvement at the dwelling level

Building performance evaluation of individual projects can give insights and lessons learnt to take forward on future projects. Energy monitoring and light touch feedback surveys on all projects would be highly beneficial for showing how effective any programme or works are.

### Utilise annual dataset releases from BEIS

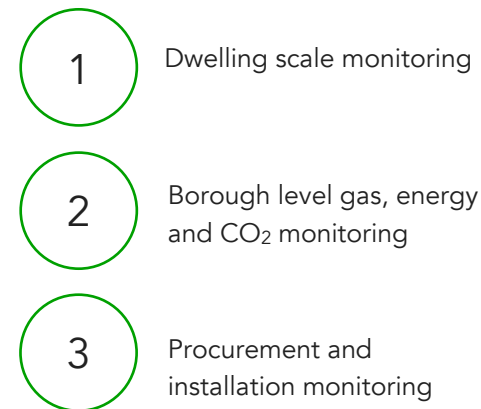
BEIS release energy and CO<sub>2</sub> emissions datasets every year for each local authority which are relevant to energy consumption in homes, the total domestic gas energy sales and total domestic electricity sales. These should be monitored annually, with a target reduction in annual domestic gas sales of 10-20%. This gives a high level indication of real impact.

### Monitor numbers of low carbon installations

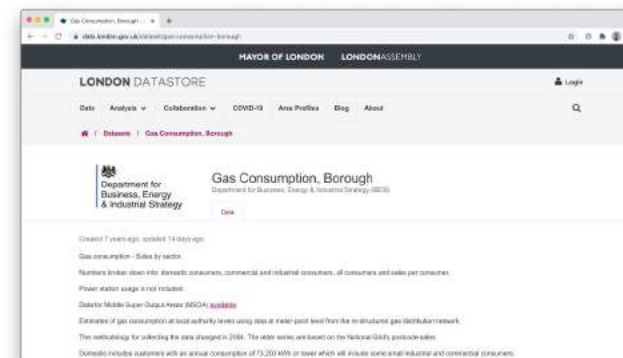
Gathering data on the total number of installations for each technology installed in London will give valuable information on whether we are moving in the right direction and how quickly. The number of gas boilers or Air Source Heat Pumps would for example be a good proxy for heat decarbonisation. These numbers are currently monitored in Germany and evidence the acceleration of the move away from gas boilers towards electric forms of heating.

### Communicating success and benefits

Communicating where retrofit has been carried out successfully, had a positive impact on residents and reduced carbon emissions will help accelerate the take up and communicate benefits to other residents, including leaseholders.



*Monitoring the impact of the retrofit programme should be implemented at different scales to ensure progress and enable corrective actions along the way.*



*Borough and post code level domestic gas and electricity consumption is available from BEIS (Subnational gas and electricity) and through the London Datastore website.*

*This high level data could give a long term indication on whether programmes were achieving real energy reductions.*



## Action 11 Activity 11.1 > Agree metrics and report Retrofit progress between Councils

London local authorities may independently be progressing retrofit programmes at different speeds and with different approaches. Gathering and sharing data and feedback from retrofitted properties will allow the councils and wider industry to understand and learn from the impact retrofit measures have. This is crucial for successful retrofit. It facilitates identifying and rectifying problems as early as possible.

### Potential reporting metrics

Councils should agree a set of reporting metrics that all projects report against. These would be shared between boroughs or could even, with suitable GDPR measures in place, be reported publicly. Example metrics that should be considered include:

- Number of measures installed
- Number of whole house retrofit plans prepared
- Metered energy consumption per property or per group of properties
- Standardised post completion resident survey
- Post completion spot checks of moisture levels in retrofitted building fabric for higher risk scenarios
- Sample monitoring of indoor air quality to build understanding of existing conditions and what makes robust retrofit

Data should be frequently collected and analysed for discrepancies and to feedback learning to other boroughs and the wider retrofit community.

### Aligning with emerging industry initiatives

Guidance for carrying out building performance is available for different scales and scope is now available. A full British Standard (BS 40101) is due to be published later this year. London local authorities should ensure the agreed metrics align with the latest industry guidance on effective building evaluation.



Monitoring and data collection of environmental and energy performance is quickly becoming easier. For example the Switcher room thermostat provides landlords with internal temperature, humidity and heating patterns for their building stock to allow early diagnosis or intervention to provide advice for residents.



RIBA Plan for use (2021) and Wood Knowledge Wales Building performance evaluation guide both provide strategic and practical guidance for implementing a range of scales of building performance evaluation.



## Borrowing delivery models from the UK and internationally

There is a lot of excellent and innovative work going on to expand retrofit and refurbishment. Councils can borrow and adapt existing models, some are shown and compared on the following page.

**BetterHome**, started in Denmark was started by private companies Rockwool, Danfoss and Grundfos seeking to stimulate demand for energy efficiency products. It was a one-stop-shop for homeowners to partner them with an installer who would oversee the whole project delivery. There was no tie to using specific products. The scheme was successful and ran from 2014 to 2020 before being closed to new applications.

**Bristol City Council Energy services** is a dedicated Council team for improving energy efficiency in domestic properties, similar to that provided by some London boroughs. They provide: central application and dissemination of grant funding, guidance on grant schemes, and practical advice. Exploring crowd

The **Carbon Co-op** available in Northwest England, and **Urbed** provide energy services and advocacy for 'People Powered Retrofit' including consultant advice. Their tool, My Retrofit planner, gives a standardised format to give bespoke impartial consultant advice to homeowners. It recommends different strategies and helps householders form a whole house plan with the likely benefits at each step. It is an individual private householder planning tool that costs £550 per home.

**Energiesprong** is an implementation mechanism for retrofit to a net zero carbon standard. It uses energy cost savings from retrofit in a form of energy performance contracting. There have been a number of Energiesprong projects in the UK and more are currently in the planning stage, mainly through housing associations. The Mayor of London's Retrofit Accelerator: Homes programme is aiming to put example homes on the pathway to net zero carbon, including a Whole House approach using Energiesprong UK.

**Engie Zero** is Engie's version of the Energiesprong model: they help councils unlock finance on the basis of future savings, alongside an energy and comfort plan. An important difference however is that they act as a one-stop-shop, including delivery and, if needed, maintenance and monitoring (while Energiesprong act more as intermediaries).

**Parity Projects** provide Whole House Plan web tools that show different 'pathways' and compare carbon and energy improvements across a whole stock to create a costed plan for retrofit of each home. It is aimed at local authorities, housing associations, homeowners and landlords who subscribe to the platform. A platform has been developed for London under the name Ecofurb and can be used for free to prepare an indicative whole house plan. It is available at <https://www.ecofurb.com>. Additional services and works can be provided to take it further,

**Retrofitworks** is a co-operative with two types of members, contractors and community groups or authorities. The cooperative brokers retrofit work between members and provides quality assurance. This provides contractors with a work pipeline, and authorities a trusted contractor work force. They have delivered ECO and Warm Homes London projects in London and are one of the largest retrofit providers. Retrofitworks was started by Parity Projects, but is a fully independent member-owned cooperative.

**SuperHomes**, in Ireland, is led by the Tipperary Energy Agency. It is a one-stop-shop for homeowners taking them through the initial planning, tendering, and overseeing of the works. The packages include essential elements (e.g. homes have to have an air source heat pump, mechanical ventilation (demand control or MHVR) and insulation) as well as some tailored options. SuperHomes also help with grant funding of up to 35% of the works.



## Comparison of example existing energy efficiency delivery models

A number of delivery and financing models could be adopted by councils. Some will be better suited to different parts of the stock, tenure / ownership types or building characteristics. The main models are summarised here in terms of how they address the main challenges to make retrofit happen.

Existing model	Financing	Finding and liaising with homeowners	Planning & technical appraisal	Single phase or phased works	Finding / linking with supply chains	QA / overseeing the works	Follow up	Applicability & notes
ENGIE Zero	Yes	Through landlord	Yes	Single	Yes	Internal	Yes, against guaranteed performance parameters	Social and private rent
Energiesprong	No, but savings guarantee opens opportunities	Currently through landlord	By partners	Single	Partners	No, but contractual performance drives quality	Yes, against guaranteed performance parameters	Social and private rent
People Powered Retrofit (Manchester)	No, group buying for reduced cost	Yes	Yes, my Retrofit planner	Either	No	Yes, Retrofit coordinator	Optional	Individual homeowners
Retrofit Works	No	Yes	Yes, by Retrofit coordinator	Either	Yes	Yes	Optional	Typically landlords and houses
Super Homes (Ireland)	No (but in Ireland, attracts a 35-50% public subsidy)	Yes, one-stop-shop for homeowners	Yes	Single	Yes	No	No	Individual homeowners
Betterhome (Denmark)	No	Yes, one-stop-shop for homeowners	Yes	Single	Yes	?	?	Individual homeowners. Set up by private companies to drive product demand. Closed, example only.
Other non-energy efficiency models								
PV delivery : Solar Together	No, group buying for reduced cost	Yes	Yes	n/a	via auction	? MCS installers	No	Typically aimed at homeowners



# 5.0

## How to pay for it:

### Costs, funding and finance



- Cost of measures and packages
- Funding opportunities for council-owned stock
- Opportunities for collaboration with the finance community
- How to support owner occupiers and the private rented sector



## Summary of recommended actions in this area

The key recommended actions and activities in terms of **costs, funding and finance** are listed in the adjacent table.

Each action/activity is explained succinctly in the following pages.

The full list of actions and activities is provided in a separate spreadsheet which London Councils can develop and add to when this phase of the project has been completed.

### Costs, funding and finance

#### 12 Establish the cost of retrofit, business case and funding gap for the different tenures

Activity 12.1 > Analyse outline cost of retrofit for whole housing stock

Activity 12.2 > Establish the business case for funding retrofit for council-owned stock

#### 13 Maximise capital finance for council owned stock (and eligible homes)

Activity 13.1 > Coordinate applications for government funding

Activity 13.2 > Assess borrowing and private investment opportunities

#### 14 Create a 'Finance for retrofit' taskforce with finance experts

Activity 14.1 > Assess emerging financial products appropriate for different tenures

Activity 14.2 > Analyse and develop options for seed funding to leverage future finance

Activity 14.3 > Collaborate with other boroughs on finance and funding

#### 15 Support the owner occupier and private rented sectors to leverage private investment

Activity 15.1 > Consider developing innovative finance offerings to support blended funding

Activity 15.2 > Support homeowners and landlords with funding applications and lending



# The London local authorities' role in financing retrofit

## Money is an issue

London local authorities are committed to working together to retrofit London's building stock to an average level of EPC B by 2030 and many have declared a climate emergency and are targeting net zero emissions by 2030. However, financing and resources are two significant issues as local authorities are under considerable pressure and have limited means. There needs to be a significant amount of public and private finance mobilised for retrofit. And for this to happen there needs to be local and regional co-ordination.

## Resources are an issue

Local authorities are also ideally placed to facilitate finance for all stock within their borough, not just council-owned social housing. However, nearly all struggle with a severe lack of resource. So, whilst they are ideally placed to facilitate finance for retrofit, it is recognised that there are significant challenges in funding retrofit for their own stock, let alone the rest of the stock in their borough.

	Social Rented Sector	Owner Occupied	Private Rented Sector
Decision maker profiles	<ul style="list-style-type: none"> <li>Housing Association</li> <li>Local council</li> <li>Arms-Length Management Organisation</li> </ul>	<ul style="list-style-type: none"> <li>First-Time Buyer</li> <li>Mortgage Holder</li> <li>Own Outright</li> </ul>	<ul style="list-style-type: none"> <li>Landlord</li> <li>Corporate Landlord</li> <li>Asset Manager</li> </ul>
Who lives there and who pays?	Tenants in social housing are generally low-income households and have extremely limited ability to contribute to efficiency measures, making owners of social housing the principal investors. Leaseholders can have a different profile.	There is a wide range in purchasing power within this group and a wide range of finance sources available to them to invest in retrofit for their own homes.	The short length of tenancies and lack of disposable income typically seen among private-rented tenants limits their ability to contribute to efficiency measures, leaving landlords as the principal investor.
Financial barriers to retrofit	<ul style="list-style-type: none"> <li><b>Limited funds</b> – new construction, retrofit of existing stock and building safety improvements compete for council budgets</li> <li><b>High upfront costs</b> – both councils and housing associations have large portfolios</li> <li><b>Long term financing</b> – short term government grant programmes make it difficult to develop long term plans and finance models</li> <li><b>Interest rate</b> – housing associations have the highest share of the stock and face higher borrowing rates than local authorities</li> </ul>	<ul style="list-style-type: none"> <li><b>High upfront costs</b></li> <li><b>Lack of access to capital</b></li> <li><b>Low confidence in energy bill savings</b> – where homeowners are seeking full repayment via energy savings</li> <li><b>Duration of ownerships</b> - the energy bill savings may not accrue to the homeowner if they move out of the property</li> <li><b>Improvement not reflected in home value</b></li> <li><b>Availability to financial products</b> and limited options and desire for borrowing</li> </ul>	<ul style="list-style-type: none"> <li><b>High upfront costs</b></li> <li><b>Lack of access to capital</b></li> <li><b>Split incentive</b> – most landlords do not pay energy bills and therefore do not financially benefit from the energy bill savings</li> <li><b>Improvement not reflected in rental value</b></li> <li><b>Availability of finance products</b></li> <li>Freehold owners of leasehold rental properties are typically interested in <b>ground rent</b> only, which is <b>unaffected by property improvements</b>.</li> </ul>
Key drivers	<ul style="list-style-type: none"> <li>Climate change targets</li> <li>Broader value of health &amp; wellbeing of tenants</li> </ul>	<ul style="list-style-type: none"> <li>Climate change action</li> <li>Minimising running costs</li> <li>Increase in asset value from measures</li> </ul>	<ul style="list-style-type: none"> <li>Increase in asset value from measures</li> <li>Increase in rental value from measures</li> </ul>

A different approach to finance for different tenures is required



## Action 12 Activity 12.1 > Analyse outline cost of retrofit for whole housing stock

### How much will it cost to retrofit?

It is challenging to provide an accurate cost assessment of the cost of retrofit for housing. It depends on the current building's characteristics and performance and on what works are required.

Parity Projects have provided both London-wide and individual borough data, not only on the profile and performance of existing stock, but also on the number of measures and level of investment required for two different pathways. Broadly, Pathway 1 presents a scenario that cuts carbon emissions by around 56%, and achieves nearly average EPC B; and the Pathway 2 scenario achieves net zero carbon emissions and average EPC B. These reports can be used to understand the total, average and range of investment required. Their analysis suggests a wide cost range between £5,000 and £100,000 per property with averages of £13,000 and £25,900 respectively for Pathway 1 and Pathway 2 to improve the building fabric and ventilation system, change the heating system to a heat pump, generate a significant amount of renewable energy on-site with roof mounted PVs and be able to manage demand with more flexibility.

### Significant leverage of private capital is required

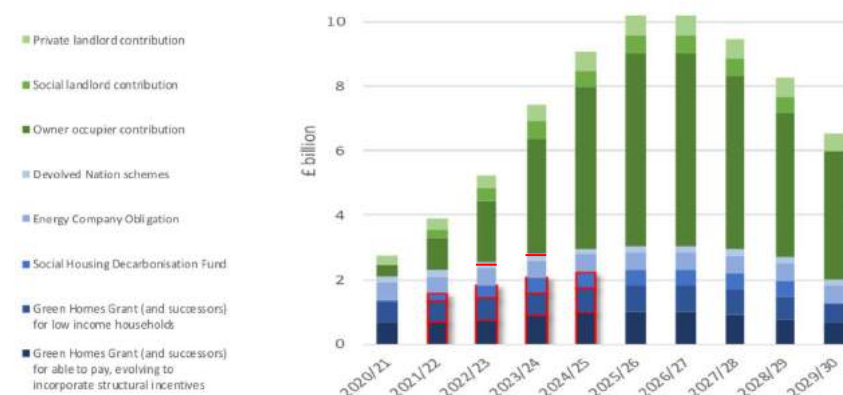
The Energy Efficiency Infrastructure Group (EEIG) and BEIS have both previously provided estimates on investment for a pathway towards **EPC C for all homes in the UK by 2030**: £73 billion and £65 billion respectively.

Based on the data from Parity Projects, investment for a pathway to towards **EPC B by 2030 for homes in London** would cost £49 billion.

It is imperative for government to provide further capital funding and incentives that leverage private funding to reach this level of investment. As part of their study the EEIG illustrated the demands for both public and private investment. Public investment includes current, pledged and required public funding, calling for an extra £7.8 billion of public capital over the next four years. The private funding includes the contributions required from social housing landlords, private landlords, and finally owner occupiers, who represent the largest contribution.

	Pathway 1 - 56% CO <sub>2</sub> reductions		Pathway 2 - Net Zero	
Total Investment	£49,296,156,159		£97,956,743,616	
Average Investment	£13,000		£25,900	
Properties Affected	3,416,500		3,780,6180	
	Number of Properties	%	Number of Properties	%
< £5K	564,340	14.9%	13,060	0.3%
£5 - £10K	1,115,800	29.5%	61,370	1.6%
£10 - £20K	828,900	21.9%	1,118,900	29.6%
£20 - £30K	515,710	13.6%	1,419,300	37.5%
£30 - £50K	356,840	9.4%	1,072,500	28.4%
£50 - £100K	33,540	0.9%	92,010	2.4%
> £100K	1,280	0.0%	3,370	0.1%

Investment figures from Parity Projects based on analysis of all 3,781,477 properties in the 32 Boroughs and the City of London



Investment pathway towards EPC C for all homes by 2030 developed by EEIG. It includes a requirement for a further £7.8 billion of public capital funding over the four years to the end of this Parliament, outlined in red.



## The cost of retrofit should not be exaggerated

It is important to consider whether a measure is undertaken as part of a planned enhancement or maintenance activity. For example, re-rendering a wall would be an ideal time to apply external insulation and would mean the actual extra costs are just the insulation material and labour to secure the insulation to the wall. Retrofit and energy efficiency improvements should be coordinated with planned enhancement, building safety programmes and maintenance activities like this to keep costs down.

Large-scale retrofit programmes will also generate economies of scale which could be factored in when analysing outline retrofit costs.

## Consider the cost of retrofit in context

While the level of investment for retrofit represents a huge challenge, it is worth noting that there is already a considerable amount of money being spent on running and improving our homes.

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### Home improvement market

#### £2,100 per home

is the average **annual** spend on renovation and home improvements by people in London. The UK spends £7billion on DIY supplies. Covid-19 has also triggered an increase in home improvement works and planning applications for extensions.

### Private rented property repairs

#### £1,000 per home

is the average spend by landlords each year on refurbishments, replacing or repairing boilers and fixing structural damage. These costs will increase with the Minimum Energy Efficiency Standards (MEES).

### Social housing costs

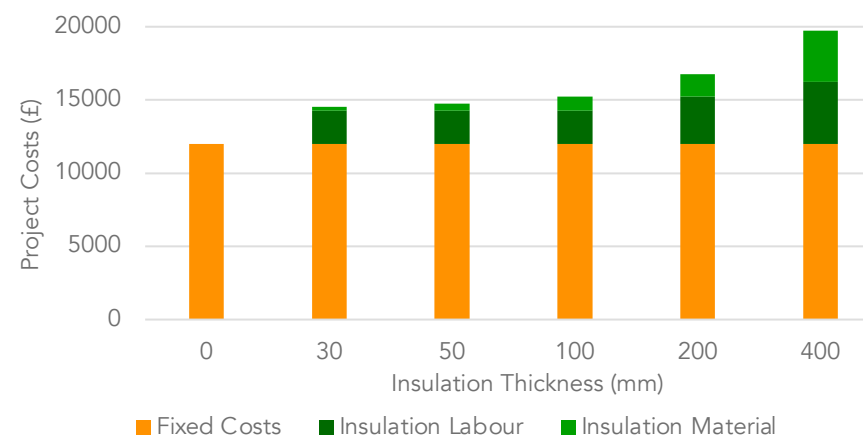
#### Up to £10,000 per home

was spent over the last 10 years on more than 1 million homes to meet the Decent Homes standard. Social housing providers also have significant budgets for maintenance and repair, with building safety works now a priority.

### Energy costs and fuel poverty

#### £4.2 billion a year

is spent on energy bills by social housing tenants in the UK, with more than half a million households in fuel poverty in London. Schemes such as the Warm Homes Discount help with these payments.



Fixed and variable costs to re-render a 100m<sup>2</sup> external wall adding an additional insulation layer. This shows that the actual cost of the insulation material and labour is relatively minor. Assuming that the wall had to be re-rendered anyway, for 100mm off insulation, the low carbon retrofit costs should be considered as £3,000 not £15,000

## Top 10 most common home improvements

1 - Getting a new bathroom (39%)

2 - Installing a kitchen (38%)

3 - Installing a new boiler or central heating system (34%)

4 - Having a garden make-over (26%)

5 - Installing double glazing (26%)

6 - Building an extension (17%)

7 - Knocking through rooms (12%)

8 - Fitting solar panels (12%)

9 - Getting a loft conversion (10%)

10 Adding an extra bedroom (9%)

The majority of the most common home improvements represent opportunities for energy efficiency improvements, decarbonising heat or generating renewable energy highlighted in orange.



## Action 12 Activity 12.2 > Establish the business case for funding retrofit for council-owned stock

### Plan investment using your Homes Revenue Account (HRA)

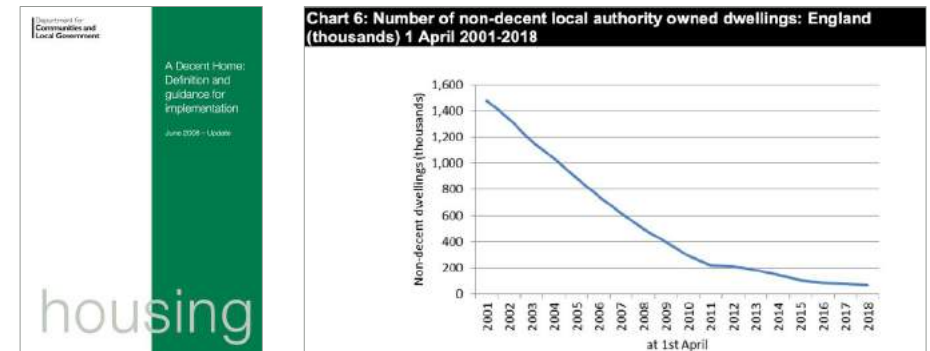
The HRA is the account in which a council's housing revenue (e.g. tenants' rent) and housing costs (e.g. property management and maintenance) are kept. It is a landlord account, recording expenditure and income arising from the provision of housing, it is not a separate fund but a ring-fenced account for certain transactions. By law, this account is separate from the 'General Fund' that local authorities use for other fiscal purposes.

The main sources of income are from tenants in the form of rents and service charges, but public funding and borrowing can provide the capital that would be required for retrofit works and maximising capital finance is explored further under Action 13. There is also revenue from planning policies to consider, such as carbon offset payments under Section 106 agreements.

When establishing the business case for retrofit it is important to develop a financial strategy that can be supported by the borough's HRA. The business case for retrofitting council-owned stock should be reviewed alongside current investment for Decent Homes, building safety works, and maintenance and repair programmes. Efforts should be made to co-ordinate these works as much as possible to reduce costs.

### There is a broader financial benefit to retrofit

There are several second-order effects of retrofit which provide public value and social return on investment (see following page). They should be considered in the business case. There are a few methodologies available to establish the public value of a project. Social Return on Investment (SROI) is an organisational method of accounting for value creation, primarily social or environmental value. The key difference between SROI and other methodologies is the assignation of monetary values to the amount of change created. This can be used to support the financial case of retrofit. The Cabinet Office's 'A guide to Social Return on Investment' provides a comprehensive account of the methodology of SROI.



Over the last 20 years, a very large number of homes have been brought up to the Decent Homes Standard showing that a concerted effort to achieve a retrofit objective is possible, despite challenges and issues.

#### Suggestions to frame the business case for retrofit

London local authorities could use this structure to develop an investment and business case for retrofit.

- **Strategic context** – How well does the project fit into the council's strategic priorities?
- **Affordability** – Are financial resources available within existing sources of funding for the proposed project and what will be the net impact of the options under consideration, in terms of cost to the organisation versus benefits?
- **Public value** – Is there a consideration of the wider benefits compared with costs to UK society of the proposals? This is not the same as the net effect on the local authority and it considers the same range of options as the financial appraisal but from a wider social perspective.
- **Value for money** defined as 'Public value divided by financial impact'. It measures the social benefit of an option per pound of public cost. Most public sector organisations will need to develop a business case to secure investment.



## Bang for the buck: cost of measures and public value

The most common method of rationalising the cost of retrofit is to divide the capital cost by the annual energy bill savings to give the number of years it will take to payback. But what is a good payback? Should we expect full return on investment from retrofit?

If carbon reductions are our primary goal, we might consider the cost per tonne of carbon saved. However, these figures will depend hugely on the carbon factors used, the building's heat source (which could change) and the timeframe over which they are calculated. It can quickly become difficult to compare like with like.

A more reliable metric would be cost per kWh of energy saved. This would allow easy comparison between different measures and packages of measures. However, as well as understanding comparative cost of measures it is important to understand their second-order effects.

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### Health

Increasing thermal comfort and improving indoor air quality will have a positive impact on health, especially the vulnerable. The IEA and the OECD suggest health improvements might account for 75% of the overall value of improving the energy efficiency of buildings.

### Wellbeing

HACT's Social Return on Investment calculator suggests that an improvement of 3 EPC bands in London improve individual's wellbeing, equivalent to £651 per year.

### Energy bills and fuel poverty

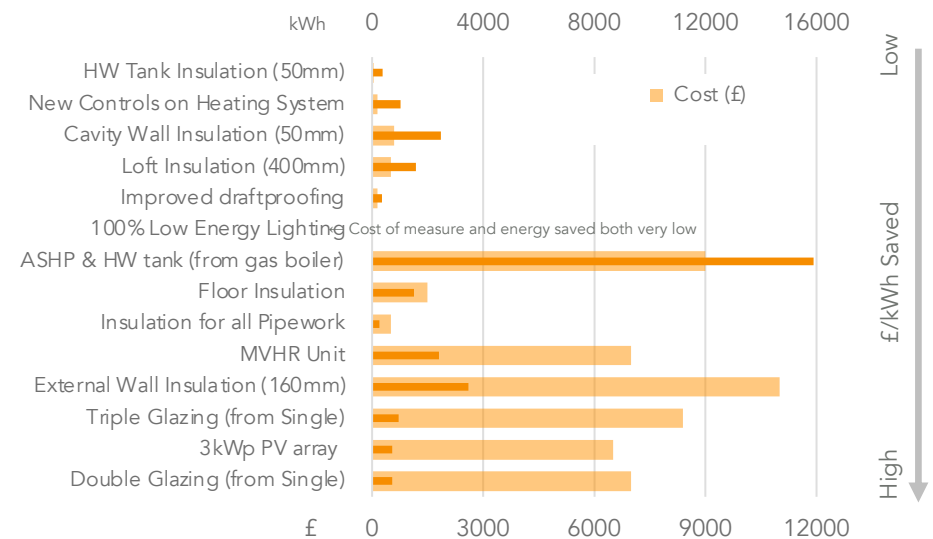
Targeted high energy savings will reduce bills and take more people out of fuel poverty, reducing the need for financial support.

### Local economy and job creation

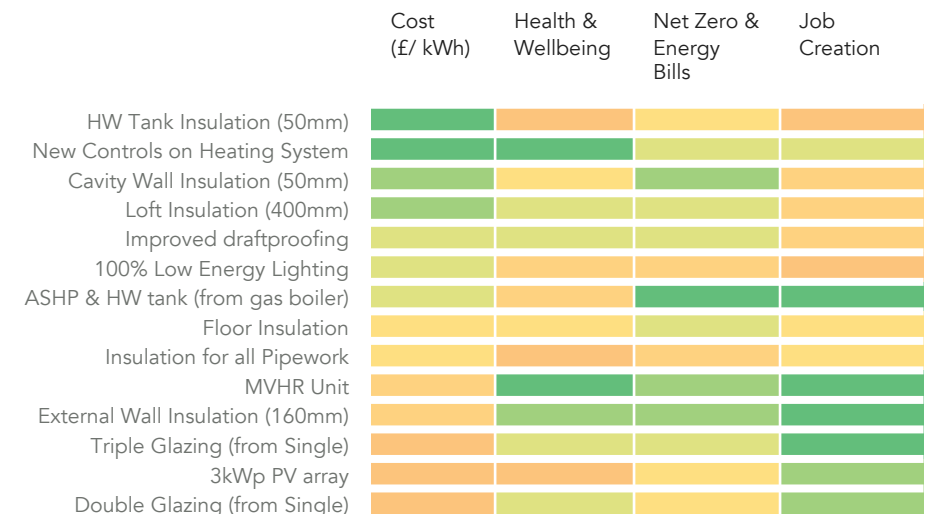
There is a fantastic opportunity for job creation in London. Parity Projects estimate that it can create 40,900 full time equivalent jobs for 9 years to get all homes to EPC B by 2030 and achieve 56% emissions reductions.

### Society's cost to achieve Net Zero

There is finite supply and delivery capacity of renewable energy via the grid. The less grid capacity we will need to achieve net zero, the lower infrastructure costs will be.



Indicative energy savings (top axis) and costs (bottom axis) for primary retrofit measures for a medium size dwelling ordered by cost effectiveness (£/kWh saved). The most cost-effective measures do not necessarily deliver the highest energy savings and actual cost must be considered to understand investment vs budget.



A subjective assessment of the impact of retrofit measures on the second-order effects which could help establishing priorities.



## A changing landscape of government funding for retrofit

In July 2020, the Government announced a £2 billion Green Homes Grant scheme to upgrade homes across England. It was announced that £500 million of this funding would be allocated to local authorities through the Local Authority Delivery (LAD) scheme. £50 million (later increased to £62 million) were also allocated to demonstrator projects of the Social Housing Decarbonisation Fund. Under a year later there is already a very different landscape: the Green Homes grant voucher scheme has already been closed, and it is estimated only £300 million worth of vouchers will have been issued. In March 2021, the Government have announced £300 million extra funding for green home upgrades to be distributed via the Sustainable Warmth Competition (i.e. LAD3/HUG1).

Details on current government schemes, as of May 2021, are provided in the adjacent table.

## An unsatisfactory funding application process

One of the key challenges is that government funding is generally piecemeal and stop-start. There is no recognition that to deliver programmes in many communities, across different tenures, there needs to be a long-term approach that allows local authorities to play a key role.

Councils are not given enough notice of bidding rounds and application deadlines, which often does not allow for a well-considered application. The industry is lobbying the Government to address this, but in the meantime, boroughs should prepare detailed stock assessments and building renovation plans including proposed measures, costs and energy and carbon savings. This will streamline the process, ensuring boroughs are ready to take advantage of government funding as it becomes available.

Obligation	<b>The Energy Company Obligation (ECO)</b> ECO is a government energy efficiency scheme designed to deliver on the Home Heating Cost Reduction Obligation (HHCRO) and the Carbon Emissions Reduction Obligation (CERO). Capital is allocated to electricity suppliers who deliver measures to eligible households, namely those who receive the Warm Homes Discount or live in social housing with a poor EPC. ECO Flex allows local authorities to identify further eligible households. The scheme is expected to run until 2026 with an increase from £640 million to £1 billion each year.
	<b>The Green Homes Grant Local Authority Delivery scheme (LAD)</b> The LAD scheme has already been allocated its original £500 million, with £200 million for local authorities to support low-income, fuel poor households and the other £300 million allocated to the 5 Local Energy Hubs. London boroughs should continue to engage with the Greater South East Energy Hub who were allocated £79,600,000, and to apply for LAD3 as part of the Sustainable Warmth competition.
Grants	<b>Social Housing Decarbonisation Fund (SHDF)</b> The Government have also pledged to spend £3.8 billion over ten years on the SHDF. Following the £62 million demonstrator scheme, they have announced that a further £60 million will be available to Local Authorities for 2020–21 as part of the main scheme, with £240 million and £410 million provisionally allocated in 2022–23 and 2023–24 respectively.
	<b>Home Upgrade Grants (HUGs)</b> In 2019 the Government manifesto pledged £2.5 billion in Home Upgrade Grants over 5 years for low income households living in inefficient homes. In 2020, it was announced £150 million would be made available in 2021–22, which has now come forward under the Sustainable Warmth competition.
Discount	<b>Warm Homes Discount</b> The Warm Home Discount is a yearly one-off £140 payment applied to eligible customers' electricity bills to reduce living costs for those on a low income or a state pension. It currently costs the Government £350 million per year, supporting 2.5 million households, with extension proposals to 2025/26.
Incentive	<b>Domestic Renewable Heat Incentive (RHI)</b> Homeowners and private or social landlords can receive payments for 7 years to fund biomass boilers, solar water heating and certain heat pumps.



## Boroughs can borrow under their Homes Revenue Account

In 2018, the Government confirmed that the HRA borrowing cap was abolished with immediate effect. As a result, London local authorities with an HRA can borrow for any capital expenditure without Government consent, provided they and their auditors are satisfied they can afford to meet the borrowing costs. Borrowing by councils is governed by the Prudential Code for Capital Finance in Local Authorities.

## Borrowing can take many forms

Councils can borrow from any willing lender. Most long-term council borrowing currently comes from the Public Works Loan Board (PWLB), but London local authorities can also borrow from banks and investment funds. Increasingly popular are loans between local authorities and community municipal investments.

## Sustainable finance now uses ESG considerations

Under Option Borrower Option (LOBO) loans were developed by banks to compete with the PWLB. They are long-term loans, where the lenders have the option to change the interest rate at pre-agreed dates. The borrower can then repay the loan in full or agree to the new interest rate.

In the 2000's LOBOs were very popular with councils but in recent years, their complexities have come to the fore, making them less appealing.

A growing number of financial institutions are now offering lending products that are based on environmental, social and governance (ESG) considerations, where the borrower receives a set discount on the interest rate if pre-agreed ESG targets are met. An increasing number of housing associations are using Sustainability Linked Bonds for low interest rates and long-term capital to fund retrofit programmes.

### Public Works Loans Board (PWLB)

The PWLB is directly managed by HM Treasury and provides loans to local authorities, primarily for capital projects. Local authorities can borrow money from the PWLB at interest rates lower than market rates.

### UK Municipal Bonds Agency (UK MBA)

The UK MBA is a Local Government Funding Agency which allows local authorities to diversify funding sources and borrow at a lower cost than is available from central government. The agency sells municipal bonds on the capital markets, raising funds that it can then lend to councils.

### The Mayor of London's Energy Efficiency Fund (MEEF)

The MEEF is a £500m investment fund established in 2018 by the GLA with funding from the European Commission, which looks to providing flexible and competitive finance for low carbon projects across London.

### Community Municipal Investments (CMIs)

CMIs are a new way to provide a low cost and longer-term form of borrowing for local authorities. It utilises a local investor crowdfunding approach to create a pool of funding. When investors invest in a CMI they are investing directly in the council and the council sets out how it will use the money. CMIs have a dual benefit, they deliver community wealth, while also raising awareness.

### Green Investment Group

In 2012 the UK Green Investment Bank plc (GIB) was launched by the UK Government. It was designed to mobilise private finance into the green energy sector. Between 2012 and 2017, the GIB helped to finance more than £12bn of UK green infrastructure projects. In 2017, Macquarie acquired the GIB to create a team of specialist green infrastructure developers and investors.

### UK Cities Climate Investment Commission

This partnership between London Councils, Core Cities and the Connected Places Catapult aims to support investment for low carbon projects by:

- creating increased confidence within the investment community in low carbon projects by leveraging the benefits of the scale across the 12 cities
- identifying opportunities for philanthropic investors
- building stronger relationships between UK cities, investment community, supply chain and academic institutions



## Action 14 Activity 14.1 > Assess emerging financial products appropriate for different tenures

### Support uptake of finance enabling products

The products presented in the adjacent table have been identified by the Green Finance Institute (GFI) as enablers of green finance. They should help to increase confidence, including confidence in lending, borrowing and payback, by guaranteeing performance, setting out coherent plans and providing certification. Boroughs can look to set up their own versions of these products or look to adopt and use emerging standards.

### Guaranteed performance is crucial to finance models

Models such as Energiesprong are financed on future energy cost savings and rely on guaranteed performance for their financing model to work. Under the Energiesprong approach, when a building is retrofitted to Net Zero, the costs of the retrofit are paid back as a service fee with these additional payments being equal to or smaller than the energy bill savings, sometimes complemented by a fixed 'comfort charge'. This approach is becoming increasingly popular. Products such as metered energy savings can support models like this that rely on energy cost saving to give confidence to investors.

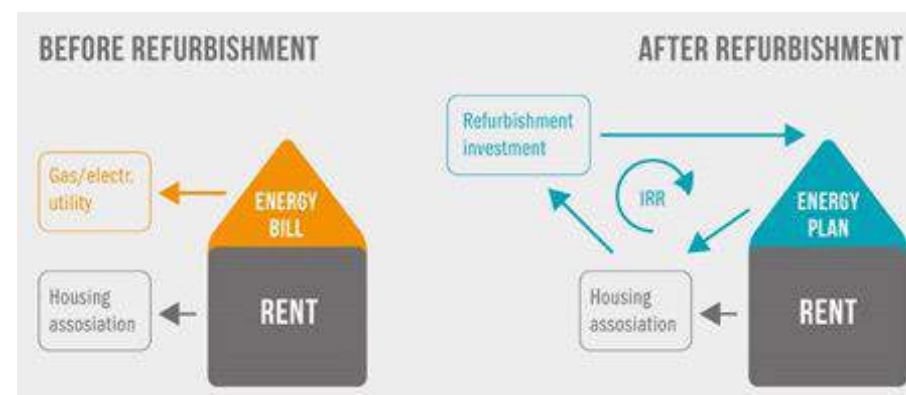
### Emerging financial products can help mobilise capital

In their report '*Financing energy efficient buildings: the path to retrofit at scale*' the Green Finance Institute have detailed a series of emerging financial products that be used to help mobilise capital, these are presented on the following page. As the owners of social housing, boroughs should assess if any of the products applicable to the social rented sector would be beneficial to them in funding retrofit for their own stock.

Boroughs should also review the role they can play in the uptake of products for owner occupiers and the private rented sector. For some, legislation and policy may need to be amended, and for others the council may be able to serve as third party facilitator.

Product	Description	SRS	OO	PRS
<b>Metered energy savings</b>	A standardised calculation methodology for energy savings from retrofit to provide confidence in payback.	✓	✓	✓
<b>Building renovation passports</b>	A tool providing information on what measures are possible and a long-term renovation plan for each building that can be achieved at a flexible pace	✓	✓	✓
<b>Trustmark Platform / One Stop Shop</b>	A platform to support customers through the retrofit journey: identifying measures, sources of funding and linking homeowners to a reputable supply chain.	✓	✓	✓
<b>Residential Retrofit Principles</b>	A recognised certification for financial products that support retrofit, to enhance the confidence of lenders and borrowers.	✓	✓	✓
<b>Sustainable Housing Label</b>	A certification scheme for green buildings and retrofit projects, spanning the full breadth of tenures, to stimulate demand and investment.	✓	✓	✓

A table of enabling products for green finance, in different stages of development. For more details see the GFI's publication '*Financing energy efficient buildings: the path to retrofit at scale*' (SRS=Social Rented Sector / OO=Owner Occupier / PRS=Private Rented Sector)



The Energiesprong Financing approach (Source: University of Strathclyde)



Type	Product	Description	SRS	OO	PRS	Maturity
Tenancy Agreements	Affordable Rent	Adjustment of the 'affordable rent' definition to include energy costs, to incentivise landlords to deliver properties where tenants can afford the combined cost of rent and energy bills.	✓			Requires lobbying
	Green leases and rental agreements	Enables social and private sector landlords to recover the cost of a retrofit through adjusted rent prices based on the predicted energy savings, addressing the landlord-tenant split incentive.			✓	Guidelines being developed by GFI
Third Party Investment or Services	PACE Financing (Property Assessed Clean Energy)	PACE financing enables homeowners to receive capital for retrofit from financial institutions. The liability is secured against the property not the owner and repaid through an additional property tax, collected by the local authority or a third party, typically over extended timescales that make repayments affordable.	✓	✓	✓	Gaining popularity aboard but not uptake yet in the UK
	Community Municipal Bonds	Utilises an investor crowdfunding approach to create a source of funding. They can provide a low cost and longer-term form of borrowing for local authorities.	✓			Gaining popularity
	Comfort as a service	Homes fitted with energy controls that support remote optimisation of the building performance could achieve significant energy savings that outweigh the cost of home energy optimisation paid to a third party.	✓	✓	✓	Needs more innovation
	Insurance backed comfort plans	The Energiesprong model offers guarantee of carbon savings and a household comfort for up to 30 years.	✓		✓	Commonly used on demonstrator projects around the UK
	MEES compliant funding	Private landlords pay a service charge to a guarantor who covers the capital investment required to retrofit the property should MEES regulations be tightened, providing landlords long-term security.			✓	Needs more innovation
	Long-term retail Investment	Retail investors provide capital for home improvements, receiving predictable returns from energy-efficient rental properties.	✓	✓	✓	Needs more innovation
Individual Lending and Savings	Green mortgages	Mortgages that offer preferential interest rates on borrowing for retrofit activities or to purchase energy efficient homes.		✓	✓	Increasing availability from banks
	Green Equity Release and Loans	Enable homeowners to unlock or borrow against the equity in their property for investment in retrofit.		✓	✓	No available examples
	Energy Saving ISA	Energy bill savings from retrofit can be directed towards an ISA or savings product, to help tenants build up their savings for a mortgage deposit.	✓		✓	No available examples
	Domestic energy efficiency salary sacrifice scheme	A salary sacrifice scheme that allows employees to draw a loan through their employer and is repaid through gross salary contributions.		✓		No available examples, 'Ride to Work' parallel
	Leaseholder financing	Provides an attractive financing offer to private leaseholders via social landlords to foster positive engagement and consent for multi-property retrofit.	✓			No available examples



## Action 14 Activity 14.2 > Analyse and develop options for seed funding to leverage future finance

### Finance experts can advise how seed funding and demonstrator projects can catalyse future finance

Seed funding is an initial investment to inject money into a project in order to help stimulate growth. Usually, seed funding is used to see a project through to the next round of funding or into a position where the project generates its own income. The experience of the finance community can be invaluable in demonstrating how seed funding can provide the resource and development capital to kick start a retrofit programme, which can be recovered across the projects as they subsequently develop.

The GLA's Retrofit Accelerator: Homes is a key programme that many London boroughs are participating in to get the technical expertise they need to kick-start 'whole-house' retrofit projects. Social housing retrofit programmes are often used as demonstrators, acting as a catalyst for retrofit across the entire housing stock.

#### The GLA's Retrofit Accelerator for Homes

- Helps London boroughs and housing associations to develop energy efficiency projects at scale with technical and commercial solutions.
- Is targeting 1,600 whole-house retrofits in Greater London over the next three years across different boroughs,
- Aims to create a market for the low carbon and environmental goods and services sector, creating new and sustainable jobs.
- The £3.6m programme is funded on a 50:50 basis by the Mayor of London and the European Regional Development Fund (ERDF).
- The delivery partners, led by Turner & Townsend, include Energiesprong UK, PA Consulting and the Carbon Trust.

## Action 14 Activity 14.3 > Collaborate with other boroughs on finance and funding

### Collaborations allow boroughs to combine resources and expertise and achieve cost savings

Collaborations where boroughs agree to pool their resources and expertise for the purpose of a specific task can be beneficial to all involved. This may range from applications of public funding, to full regional retrofit delivery schemes. There is a growing consensus that the answer to retrofit delivery is through regional and local authority level strategies, with finance as a key pillar. Collaboration will also provide community wealth and increased awareness and demand for home retrofit.

By using economies of scale, the boroughs can also combine buying power to leverage a lower per-unit cost than they would separately. Other cost savings might include administration, labour or outreach.

#### An example of borough collaboration

The Borough of Barking and Dagenham led a successful bid for the Social Housing Decarbonisation Fund, in collaboration with the London Boroughs of Ealing, Enfield, Hammersmith & Fulham, Haringey and Lambeth. They were awarded £9.6 million to retrofit an estimated 230 homes in London. They will install external wall insulation and replace oil and gas heating with new air-source heat pumps, along with solar panels, to improve energy efficiency, reduce the carbon footprint and keep residents warm through the winter months. They will work with Energiesprong UK, and Turner & Townsend to deliver the programme.



## The majority of homeowners are not fully 'able to pay'

Privately owned properties, including owner occupied and private rented homes, are the largest and most challenging portion of the housing stock to retrofit. Generally, there is a low level of awareness, a perceived 'hassle factor', and limited access to attractive finance.

Most past and present retrofit schemes can be split into two categories: the 'able to pay' and 'fully funded'. In reality, the majority of the population lies somewhere between these two groups. Homeowners and private landlords will require a combination of public funding, private investment, and financial products to be able to commit to retrofit. The blend of these will be on a sliding scale, relative to the private investment homeowners can contribute.

## Going beyond retrofit measures which pay back

Often, the economic case for retrofit is only attractive for some measures e.g. those that significantly improve energy efficiency or provide local energy generation, resulting in cheaper energy bills. A more thorough retrofit, including more substantial energy demand reduction efforts and low carbon heating, is critical to the decarbonisation of homes. However, the savings they elicit, do not return the same level of investment return. Homeowners will therefore need more backing and support to invest in the range of retrofit measures required to achieve EPC B and Net Zero.

## Boroughs can provide different offerings for blended finance

Where possible and resources allow, London local authorities should provide direct capital for retrofits to support homeowners and private landlords. However, most of them are unlikely to be in a position to do this. In those cases, boroughs could offer financial support in the form of an emerging financial product that does not require upfront capital, for example, PACE financing (a loan from a financial institution that is secured against a property and is repaid through an additional property tax). Boroughs could collaborate with financial institutions offering PACE financing and offer their services as a tax collector to provide a financial product to homeowners in their borough.

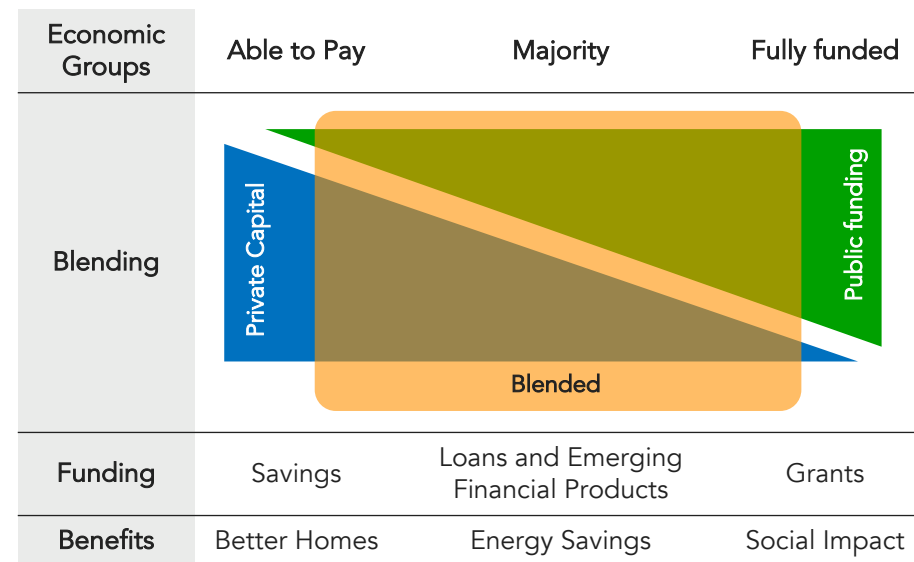


Figure illustrating how to majority of homeowner will require a blended of private and capital finance and the range of funding and benefits associated with different economic groups.

### Hackney Green Homes

Hackney Council's publicly owned energy company, Hackney Light and Power have recently launched their Green Homes programme, the first borough-wide programme in London to offer free thermal efficiency measures to privately-owned and rented homes, including cavity, loft and floor insulation. This will lower energy bills for thousands of residents and significantly reduce emissions produced by heating homes within the borough. They are also set to trial low carbon heating systems, such as hydrogen fuel-cell boilers and air-to-air heat pumps.

The Green Homes programme is aimed at people who privately own or privately rent their home no matter the level of income, with the aim to insulate as many homes as possible. Residents in the borough can also sign-up to access free energy saving advice.





## Encourage uptake of public funding and lending

There is currently limited availability of government grant funding for the 'able to pay' market. The recent Green Homes Grant voucher scheme which provided vouchers covering up to two-thirds of the cost of chosen improvements, with a maximum government contribution of £5,000 for homeowners, has now been closed. However, if and when government provides public funding for this sector in the future, London local authorities should facilitate uptake from homeowners by providing details on the scheme and guidance on how to apply.

There are also many emerging financial products that can support homeowners is borrowing money, and London local authorities could inform their residents of these products. Green mortgages such as those provided by Ecology, Barclays and Nationwide offer preferential interest rates on borrowing for retrofit or to purchase energy efficient homes.

## One stop shops can make it easier for homeowners

Emerging one stop shop models are aimed at removing a lot of the barriers to retrofit and bringing together compelling financial products. Some one stop shops provide design support and retrofit co-ordination, such as 'Cosy Homes Oxfordshire'.

## Change homeowner's perception of investment

Home improvements that directly improve energy efficiency are not currently incentivised and there is often a missed opportunity for homeowners to improve the performance of their homes when they undertake home improvement works. Moving forward, it is hoped that a wider awareness of the benefits of energy efficiency will mean investment is reflected in the property value, therefore incentivising retrofit.

For many homeowners there is also an expectation that retrofitting their home to meet climate change targets should be cost neutral as energy cost savings will enable the initial investment to payback over time. We need to move away from this simplification and understand there may be a pay out, but it is an essential investment that comes with multiple benefits.

£26.6 billion

Current worth of the repair, maintenance and improvement (RMI) market

91,000

Applications for planning in London in 2019 for home improvements.

Source: Home Improvers of Great Britain 2019, BarbourABI

### Why was the Green Deal unsuccessful?

- The UK's Green Deal was a government scheme that predated the Green Homes Grants voucher scheme, and was also deemed unsuccessful
- It was an example of a 'pay-as-you-save' scheme, where loans are taken out to pay for the energy efficiency measures and repaid in over a period of time from the energy bill savings.
- However, it had a 7-10% APR interest rate on the loan which was too high.
- It also came with no targets and did not help persuade householders that energy efficiency measures were worth paying for.
- It made many measures unaffordable with its 'Golden Rule' that the cost of works should not exceed the expected energy bill savings.



# 6.0

## How to communicate

### Engagement, take up and lobbying

- Engaging with tenants and leaseholders
- Liaising with other social housing providers
- Increasing take up for owner occupied homes and the private rented sector
- A London-wide retrofit campaign
- Lobbying opportunities
- A dynamic and collective Action Plan



## Summary of recommended actions in this area

The key recommended actions and activities in terms of **engagement, take-up and lobbying** are listed in the adjacent table.

Each action/activity is explained succinctly in the following pages.

The full list of actions and activities is provided in a separate spreadsheet which London Councils can develop and add to when this phase of the project has been completed.

### Engagement, take-up and lobbying

#### 16 Social housing: engage with tenants, leaseholders and other registered providers

Activity 16.1 > London local authorities to develop an action plan for their own stock

Activity 16.2 > Develop tools to communicate the benefits of retrofit with both tenants and leaseholders

Activity 16.3 > Liaise with other registered social landlords (e.g. G15) to coordinate actions on retrofit

#### 17 Engage with owner occupiers and the Private Rented Sector

Activity 17.1 > Run a London-wide information campaign on retrofit

Activity 17.2 > Private Rented Sector: provide incentives to pioneers

#### 18 Lobby central government for more support, guidance and funding

#### 19 Develop, implement and review the Action Plan together



## Action 16 Activity 16.1 > London local authorities to develop an action plan for their own stock

### The most promising sector for retrofit at scale

Social landlords tend to care about how much their residents spend on energy bills. In fact, it is very close to their core mission: providing access to housing so that it is sustainable financially for the residents and does not require an excessive proportion of their income.

Social landlords also generally have a longer view than homeowners who can decide to move house and sell their assets. They may also have better borrowing capabilities and/or access to funding (e.g. through the Social Housing Decarbonisation Fund).

Obviously social landlords also face many challenges, including the need to convince leaseholders. However, compared to the other sectors, social housing appears to be the most promising sector for retrofit at scale. It is therefore important for this sector to not only lead the way with

demonstrator projects (a selection of which are shown on this page, more are being delivered through the Retrofit Accelerator programme) but to develop action plans specific to each borough but consistent with this Retrofit London Housing Action Plan. It is expected that local authorities will have similar key archetypes, which justifies further collaboration on whole house plan templates relevant to these archetypes.

**We recommend that all London local authorities develop their own strategic Retrofit Housing Net Zero Action Plan to take retrofit forward. They should use this document as a starting point but should make it specific to their own stock, and collaborate/share it with the other London boroughs.**



**City of London**

George Elliston House and Eric Wilkins House



**Enfield**

Walbrook House



**Haringey**

Broadwater Farm estate



**Kensington & Chelsea**

Lancaster West Estate



**Greenwich**

Plumstead Estate



**Richmond & Wandsworth**

Fitzhugh Estate



## Different residents, different drivers

Many residents will already be concerned about climate change and want to understand how they can make changes to help. Communication with residents can tap into this desire to take action and further encourage retrofit.

However, some residents will be worried about what retrofit means for their current home, a place they may have spent time nurturing over many years. Retrofit can change the space and systems in a home. Being honest about what this means will be important, but also emphasise how these changes will benefit them through improvements in the comfort, health, and a possible reduction in ongoing costs. In particular, a clear outcome for any retrofit project should be to create better and healthier places to live. This positive message should be reflected in discussions with residents.

Depending on the measures needed, there may also be concerns around disruption, and following the Grenfell tower tragedy some residents will justifiably be nervous about the safety and the quality of the retrofit project. Engaging residents on the details of what will be included in the works and the associated quality assurance process can help reassure residents.

The situation will differ for all residents, so strategies should be developed afresh rather than using a 'one-size fits all' system.

## Guidance from industry

A useful summary of how residents may like to hear about improving the energy performance of their homes has been published by TPAS and Placeshapers earlier this year (2021) in a report titled 'Residents' voices in the UK's Net Zero Carbon journey'. The project worked with focus groups, including over 100 residents as well as sustainability experts.

The resultant report makes a series of recommendations, based on the feedback received, on the best way social landlords can engage with residents.

### PLACESHAPERS & TPAS

## Residents' voices in the UK's Net Zero Carbon journey

Why how we talk about green homes and places really matters

Author - James Bryson

### Recommendations

- The social housing sector should work collaboratively to develop clear communications advice for landlords. This should include:**
  - Developing tried and trusted messaging that landlords can use. Our groups provided a number of very useful insights into how best to communicate with residents on why upgrading their heating system is beneficial: saving money, providing 'healthy homes', helping reduce climate change. But there isn't a clear, tested message that social landlords can use. The social housing sector should fund further communications research with a representative cross section of residents from across the country to test key messages and phrases which can help residents to understand the benefits of new heating systems to them and how they help meet the net-zero carbon target.
  - Developing a bank of case study examples of people who have had positive experiences of retrofit and who are saving money on bills by living in low carbon homes.
  - Drafting a high-level road-map which individual associations can adapt and use which shows how the sector will meet the 2050 target.
  - Recruiting resident ambassadors who can talk honestly about the pros and cons of the new technology to other residents and communities.
- Engaging with local authority leaders and bodies such as the Local Government Association to develop plans for cohesive local sustainability strategies with associated communications plans.**
- The Government must start now to deliver information and awareness campaigns that provide the context for social landlords' work. Work delivered by the social housing sector is vital, but it must be supported by wider communications from all stakeholders including government. It will be far harder to engage residents with the retrofits needed in their homes unless they can see how it fits into the roadmap to the nation's net-zero carbon target.**

The UN Climate Change Conference to be held in Glasgow later this year is an ideal opportunity to launch this campaign and demonstrate how we can decarbonise housing across the country.
- There are a number of practical, immediate steps social landlords can consider now:**
  - Demonstrate commitment to the net-zero agenda through their wider business strategy by investing in more green space, sustainable vehicle fleets and creating low-carbon office space.
  - Where possible social landlords should aim for whole house retrofits. Residents showed a clear desire for a co-ordinated whole house approach. This will ensure the home is energy efficient and comfortable. Residents who are completely satisfied in their low carbon home will be more likely to recommend the process to neighbours and friends. Some retrofit measures, such as insulation, are popular and sought after by most residents. Combining retrofit methods that are popular with lesser known technology, such as air source heat pumps, can generate goodwill and create demand from residents.
  - Dedicated and trained customer liaison officers should be appointed to co-ordinate engagement campaigns and managing retrofits. An individual who acts as a point of contact for residents from the start to end of the project will provide reassurance for residents.
  - Internal training and communications campaigns are crucial. Residents will want as much information as possible regarding their homes, mixed messages or lack of knowledge can undermine resident engagement. Promoting and explaining the benefits of low carbon housing should be done whenever possible, carbon literate staff means engagement can happen organically during home visits and everyday repairs.

Extract from TPAS and Placeshapers report on residents' voices. This resource is available from the Placeshapers website.



## Recognising different priorities

The feedback from London local authorities during the development of this Action Plan was very clear: it is very important to draw a distinction between tenants and leaseholders and recognise that retrofitting properties will impact on them in different ways. Tenants, who will not generally carry the cost of retrofit will likely be more worried about the disruption and changes in space whereas a primary focus for leaseholders will be the cost of any change.

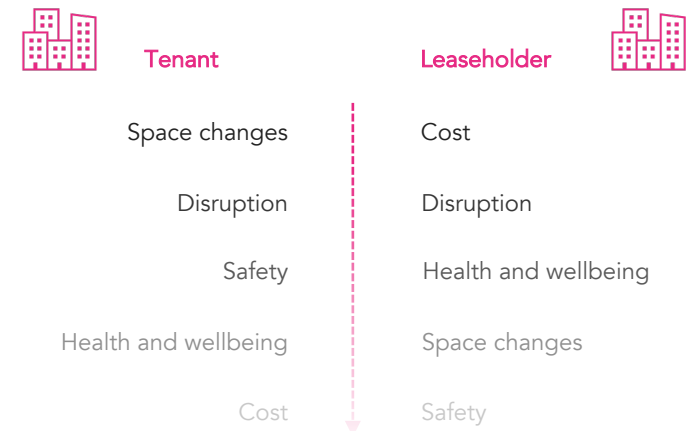
Communication strategies are a crucial initial step to correct misunderstandings and widen support for retrofit projects. These strategies will need to reflect the priorities for the targeted stakeholder.

By taking to time to talk with residents at the start of the project, a priority list can then be developed to help communicate with residents in a way that reflects their feelings.

## Allowing time for engagement

The economics of mass retrofit can be heavily impacted by project scale. We should be aiming to retrofit streets of homes at the same time rather than on a house-by-house basis.

Project programmes should therefore allow substantial time for engaging all residents – this may require the initial stages of project programme to be extended by up to 10%-20%.



*Example hierarchy of priorities - think about how the needs of different residents are to be addressed in the communication strategy on retrofit measures.*



*The above external wall insulation and window improvement scheme by Hounslow Council has helped making these homes much more efficient and comfortable. In the future, these schemes should ideally be offered and extended to interested leaseholders, which will take time in terms of communication at the outset of the project.*



## Councils and Registered Providers share similar challenges

Although there are significant differences between London local authorities and registered providers both in terms of their approach to stock management and their underlying economic model, there is a wide range of actions and activities which will need to be undertaken by both of these groups. Although these could happen in parallel, there is every reason to seek to build bridges between the two programmes.

## Create a Retrofit London social housing working group

The adjacent table provides examples of Action Plan activities which represent clear collaboration opportunities between London local authorities and registered providers. They include:

- **Technical collaboration** on simplifying the retrofit challenge by comparing council and registered providers' social housing stock, identifying common archetypes and sharing whole house retrofit plan templates.
- **Procurement collaboration**, building on some existing shared procurement models (e.g. LHC) and aggregating demand for the social housing stock in the respective boroughs or in London as a whole.
- **Cost and finance collaboration**, sharing cost estimate, ideas for cost optimisation and analysis of suitable emerging finance products, including investment from institutional investors.
- **Communication collaboration**, enabling the development of better engagement tools and material around the benefit and necessity of retrofit.

We recommend that London Councils make the most of these collaboration possibilities by creating a Retrofit London social housing working group, open to interested registered providers as well.

## 6 Map out each building's journey towards lower energy costs and Net Zero

Activity 6.1 > Develop whole house retrofit plan templates for key building archetypes

## 8 Facilitate procurement of materials and services at a larger scale

Activity 8.3 > Develop area-based strategies to enable bulk procurement and delivery

## 12 Establish cost of retrofit, business case and funding gap for the different tenures

Activity 12.1 > Analyse outline cost of retrofit for whole housing stock

## 14 Create a 'Finance for retrofit' taskforce with finance experts

Activity 14.1 > Assess emerging financial products appropriate for different tenures

## 16 Social housing: engage with tenants, leaseholders and other registered providers

Activity 16.1 > Develop tools to communicate with both tenants and leaseholders

Sample of activities from the Action Plan representing opportunities of collaboration between London local authorities and Registered Providers operating in London



The G15 is made up of London's largest housing associations. Together, they build a quarter of all London's new homes and own or manage more than 600,000 homes.



## Action 17 Engage with owner occupiers and the Private Rented Sector

London local authorities will naturally engage with tenants living in their own building stock, as well as leaseholders, and can collaborate with registered providers to engage with social housing residents. In order to deliver their climate change objectives they must also do what they can to facilitate retrofit in the owner occupier and private rented sectors, and this includes significant additional efforts to communicate to a wider group of residents.

### Analogy with communication on recycling

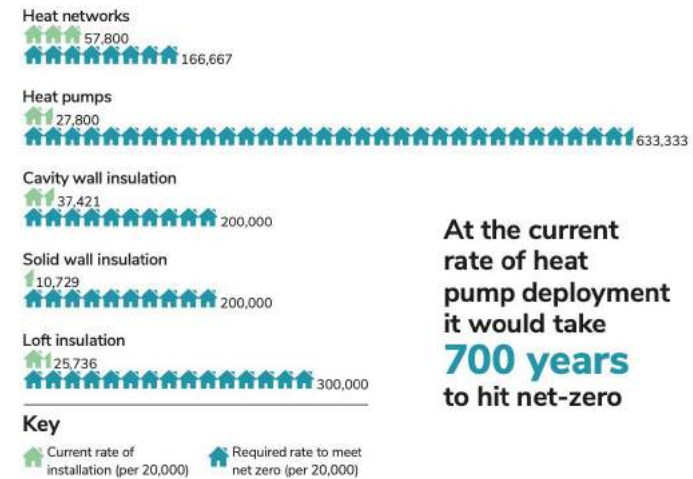
An analogy could be established with the efforts undertaken by local authorities over the last 20 years to encourage recycling. Similarly to that challenge, it is obvious that engaging only with social housing tenants and leaseholders would be insufficient. If insulation and heat pump installation rates are to increase to the level required, engaging with all Londoners about the need and benefits of retrofit, as well as the support available, will be key.

### Informing all owner occupiers and helping the pioneers

The appetite for retrofit among homeowners is variable and depends on many factors including financial and sociologic considerations but also building related constraints. It would be beneficial to both raise awareness of the need and solution for retrofit and also support those home owners who do not need convincing but require other types of support.

### PRS is a very challenging but important sector

The private rented stock is generally in a poorer state, tenants are often on lower incomes and are more likely to be from Black, Asian or Ethnic Minority groups. 18% of London's PRS households are in fuel poverty, compared with 10% of London households overall (2018 ONS). It is therefore important not to ignore this sector but to acknowledge its challenges - particularly its fragmentation and the lack of incentives for landlords. It is more likely to be a sector which 'follows' the examples set by the social housing and the owner occupier sectors.



At the current rate of heat pump deployment it would take **700 years** to hit net-zero

Average annual number of installations across low carbon heating technologies compared to the number required to meet Net Zero by 2050 in the housing sector  
(Source: The pathway to net zero heating in the UK, UK Energy Research Centre, 2020)



Exemplar programmes such as Cosy homes Oxfordshire seek to support motivated homeowners and help them with the retrofit process.



## Action 17 Activity 17.1 > Run a London-wide information campaign on retrofit

### Raise awareness

Every year 1.7 million boilers are replaced in the UK: this is a key intervention point at which private homeowners can decarbonise their homes, before investing in another gas boiler for the next 15-20 years. Many homeowners are unaware of options for low carbon heat though and, beyond heating, of which retrofit measures would suit their homes.

Engagement with residents should also focus on the “why?” and enable people to see how their choices impact the bigger picture, whilst recognising that even homeowners are a very broad group. Tackling the “why?” and trying to motivate residents ‘en masse’ is best dealt with by a large-scale, London-wide information campaign.

The collaboration between London local authorities for this is a significant opportunity, and reaching out to social housing providers and other resident associations to guarantee a unifying message that hits home with residents and does not publish confusing or misaligned information would also be very beneficial. Furthermore, lessons learned from previous campaigns can ensure that messages are chosen that truly reflect the needs of residents. One example of this is to focus on improvements in the quality of homes instead of on fuel bill reductions.

### Shed light on the unknowns

Retrofitting our homes is a huge step into the unknown for most residents. A separate campaign should be aimed at informing the wider public about what is involved and the ways in which it can be achieved.

### Amplifying resident voices

Perhaps the most effective way to communicate improvements from retrofitting homes is through the voices of residents themselves. Boroughs should work together to bring the positive messages of previous retrofit projects forward in public campaign, showing others what retrofit changes people’s home and quality of life for the better.



***People Powered Retrofit** is a householder-led approach to domestic energy efficiency retrofit in Greater Manchester. It is a partnership led by Carbon Co-op and URBED with funding from the Department of Business Energy and Industrial Strategy (BEIS).*



## Action 17 Activity 17.2 > Private Rented Sector: provide incentives to pioneers

### Regulations may help, but are not enough

Government recently consulted on requiring private rented homes to achieve an EPC of C by 2030. This would obviously help but the target is not ambitious enough and exemptions may leave a large part of the PRS stock not even meeting it. Further action by the London local authorities is therefore required to provide incentives to private landlords to retrofit their buildings in line with the recommendations of this Action Plan.

### Licensing schemes and the Landlord accreditation scheme

Some local authorities in London operate a selective licensing scheme, which applies to all privately rented properties and the GLA operates the London Landlord Accreditation Scheme. It is possible to use them to encourage landlords to put in place whole house retrofit plans consistent with this Action Plan, for example through a reduction in the licensing fee.

### Communicate with tenants

Provide advice for tenants on their rights, their options, and how to select energy efficient properties (e.g. via the 'advice for renters' GLA webpage).

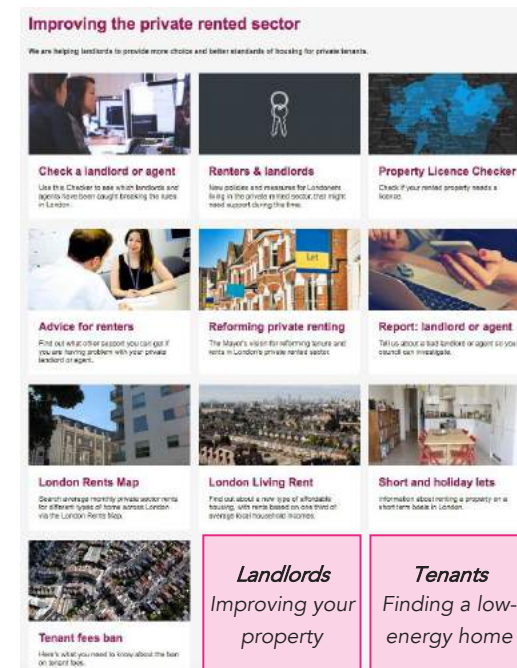
**Create an energy use disclosure:** Households could submit data on a voluntary, anonymised basis. This would help them become more aware of energy use and the industry to gather much needed data.

### Work with utility companies

Utility companies hold a lot of useful data and could play a more active role in identifying and helping the fuel poor.

### Work with Environmental Health Officers (EHOs)

EHOs are generally responsible for helping to enforce minimum standards. Minimum Energy Efficiency Standards (MEES) and retrofit requirements could gradually become part of their responsibilities, particularly for properties where interventions are needed to address excess winter cold or mould.



Tenants should not be put at risk of eviction for requesting energy improvements. Not carrying out regulatory energy efficiency standards should put landlords at risk of being on the "rogue landlords" register.

The Boroughs could also work with the London Landlord accreditation scheme to make energy efficiency an accreditation criterion.

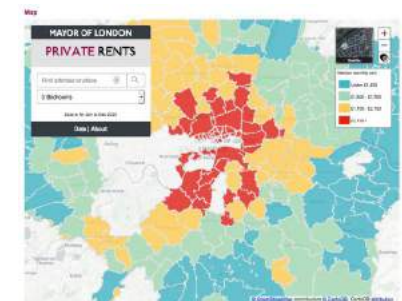


Targeted PRS action could include advice to tenants and landlords. It should also be coordinated with protections for tenants and the overall PRS strategy.

Snapshot from GLA PRS information page: PRS retrofit action should be coordinated between Boroughs and with the GLA, and build on the current overall PRS strategy.

Provide energy efficiency indicator as additional search option?

e.g. average energy use, average fuel bills, EPC rating, carbon emissions?



The London rent map (hosted by the GLA) could potentially allow searches not only by number of bedrooms, but by energy efficiency indicator. This could help stimulate demand, but also provide a more comprehensive indication to tenants of overall monthly running costs of properties.



## Action 18 Lobby central government for more guidance, funding and support

The need to retrofit the vast majority of London homes happens at a time of unprecedented pressure on local authorities in terms of budget and resources. Although London local authorities acknowledge the central role they will have to play over the next decades, it is absolutely crucial that central government help them. We recommend that the 33 London local authorities and the GLA articulate a number of key demands.

### More legal requirements

It is obvious that legally requiring some retrofit measures (e.g. replacement of a gas boiler with a low carbon heat alternative) would massively simplify the challenge for local authorities, even for their own stock. In the absence of legal requirements the onus will be on them to justify and persuade, making the transition to Net Zero much slower.

For the private rented sector, providing long-term clarity on the trajectory for Minimum Energy Efficiency Standards (MEES) to inform landlords and guarantors would be very beneficial, and this should reflect much needed reforms to SAP and EPCs.

### More and better designed funding for all tenures

Most government support schemes for retrofit have generally failed due to the poor design and spending timescales, with disastrous consequences. This should stop and the Government should engage with local authorities to design better and more sustainable funding schemes. VAT reform for retrofit would also be very helpful as VAT currently effectively increases the cost of low carbon retrofit by as much as 20%.

### A new approach to electricity prices

The adjacent pie chart shows that environmental and social obligation costs are currently being levied much more significantly on electricity than gas. 23% of the cost of electricity is made up of environmental and social obligation costs compared to only 2% of the cost of gas. Re-adjusting this balance, combined with the roll out of smart meters, would significantly help, making the transition to low carbon heat much easier.

### Heat in Buildings

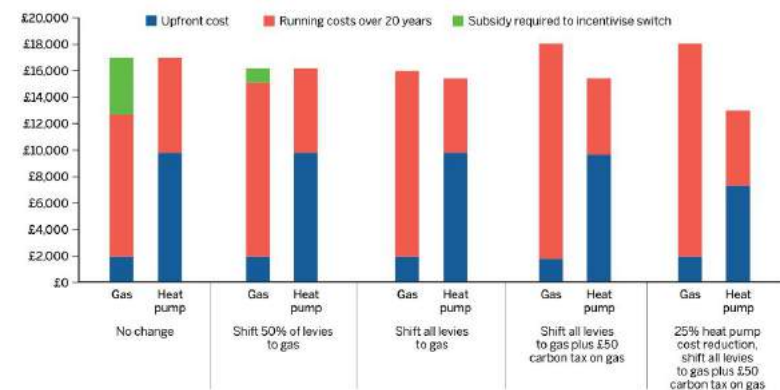
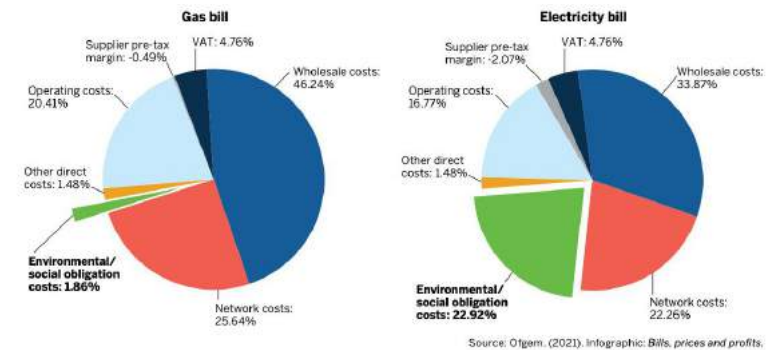
The Department for Business, Energy & Industrial Strategy is working with stakeholders to save carbon and transform the way we heat our homes and businesses.

Contents

- Government priorities
- What we have done so far
- What we are doing next
- Any recommendations or questions?



BEIS are currently developing a UK heat strategy which is due to be released by 2021. It has the potential to help accelerate the transition away from fossil fuels



Breakdown of average gas and electricity bill (pie chart)

Total cost of ownership with time-of-use electricity prices (bar chart)

(source: Getting on track to Net Zero, a policy package for a heat pump mass market in the UK, RAP and E3G, 2021)



### Sharing knowledge on current initiatives

The climate emergency declarations of many London councils have triggered an assessment of their current housing stock carbon pathway to 2050, and a review of what may be required of the housing stock in general.

The relative failure of national retrofit schemes in the past few years has also led many London councils to realise that the local and regional scale is the most appropriate scale to define and deliver the low carbon retrofits which need to happen over the next 20-30 years. The adjacent diagram summarises the initiatives under way across London. It is crucial that knowledge and findings are shared in the next few months and years.

### Develop future activities together

This Action Plan provides a starting point for a coordinated effort on retrofit across all 33 London local authorities, and it should be seen as a dynamic plan. New initiatives on low carbon retrofit being taken forward in the different boroughs across all tenures should also be signposted. There is currently a particular gap in activity related to London's private housing stock (homeowners and PRS).

### The role of the Greater London Authority

Although London local authorities are likely to be 'on the front line' of housing retrofit, there is a significant potential for the GLA to accelerate change by:

- Coordinating efforts on infrastructure related works (e.g. solar PVs, electrical grid and smarter London)
- Reducing planning barriers to retrofit
- Providing guidance
- Helping to fund pioneering schemes

#### Demonstrator projects

- **Houses:** Brent, Enfield, Lewisham, Newham, Sutton, Richmond & Wandsworth, Waltham Forest
- **Blocks of flats:** City of London, Enfield, Greenwich, Hackney, Haringey, Kensington & Chelsea, Redbridge, Richmond & Wandsworth, Sutton

#### Heat decarbonisation

- **Air source heat pumps:** City of London, Westminster
- **Ground source heat pumps:** Barnet, Enfield, Greenwich, Westminster, Richmond & Wandsworth
- **Water source heat pumps:** Greenwich
- **Waste heat:** Camden (hospital), Haringey (Energy from Waste)
- **Heat network decarbonisation:** LBTH

#### Electricity decarbonisation

- **Solar PVs:** GLA, Tower Hamlets, Waltham Forest
- **Demand management/Smart energy system:** GLA, Greenwich

#### Delivery mechanisms, skills and supply chain

- **Stock analysis:** Camden, City of London, Enfield, Hackney, Havering, Tower Hamlets, Sutton, Westminster
- **Skills:** Camden's stakeholder engagement event
- **Energiesprong:** Enfield, Haringey, Sutton
- **Window manufacturing:** Newham

#### Costs/funding

- **Cost assessment:** Enfield, Tower Hamlets, Haringey, Westminster
- **Green Homes Grant:** Camden, Enfield, Haringey, Lewisham, Redbridge, Waltham Forest, Richmond & Wandsworth
- **Funding associated with fuel poverty:** GLA, Waltham Forest

#### Engagement / take-up

- **Engagement with residents / Communication:** Greenwich, Haringey, Waltham Forest



## Making decisive steps forward

In summary, the key recommended actions of this Retrofit London Housing Action Plan are listed in the adjacent table, split by category.

Retrofit measures and plans	
1	Improve the building fabric of London's inefficient homes
2	Develop a plan for retrofitting ventilation systems to improve health and air quality
3	Electrify heat
4	Deliver smart meters and demand flexibility (controls, storage) in retrofitted homes
5	Increase solar energy generation on London homes
6	Map out each building's journey towards lower energy costs and Net Zero
Delivery models, skills and supply chain	
7	Review current maintenance programmes and identify retrofit opportunities
8	Facilitate procurement of materials and services at a larger scale
9	Enable planning to facilitate low carbon retrofit, including in Conservation Areas
10	Develop retrofit skills actively across London
11	Set up a clear and consistent system to report and monitor progress (and success)
Costs, funding and finance	
12	Establish the cost of retrofit, business case and funding gap for the different tenures
13	Maximise capital finance for council owned stock (and eligible homes)
14	Create a 'Finance for retrofit' taskforce with finance experts
15	Support the owner occupier and PRS sectors to leverage private investment
Engagement, take up and lobbying	
16	Social housing: engage with tenants, leaseholders and other registered providers
17	Engage with owner occupiers and the Private Rented Sector
18	Lobby Central Government for more support, guidance and funding
19	Develop and implement the Action Plan together



Excellent work on retrofit has already been done across London by local authorities, the GLA and building professionals. We now need to build on it and **accelerate action** in order to retrofit London's homes. London local authorities will need help to meet this challenge but they acknowledge the central role they will have to play in the years to come.

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The opportunities for London boroughs to collaborate together, with the GLA, and with the construction industry and wider society are very significant. This Action Plan outlines a wide range of recommended actions and activities for this to happen. **It would deliver significant potential benefits for London and Londoners in terms of climate change, health, equality and jobs for the future.**

The lead boroughs of Enfield and Waltham Forest will now develop the associated Implementation Plan.

**2030 is only 9 years away – we must all work together now.**





# Appendix | Key housing categories in London

CATEGORY	MOST FREQUENTLY RECOMMENDED MEASURES	NOTES
1A Terraces solid brick	<ul style="list-style-type: none"> <li>Solid wall insulation (more EWI than IWI)</li> <li>Window upgrades</li> <li>Individual heat pumps</li> <li>Roof PV</li> </ul>	EWI may be hampered by physical features such bay windows or by desire to maintain streetscape.
1B Terraces solid brick in conservation areas	<ul style="list-style-type: none"> <li>Solid wall insulation (more EWI than IWI)</li> <li>Window upgrades</li> <li>Individual heat pumps</li> </ul>	CA restrictions likely to limit EWI (except of rear elevations and gable walls) and PVs. Heat pumps may also be hampered by planning sensitivities. Window upgrades may include secondary glazing.
2A Non-terraces solid brick	<ul style="list-style-type: none"> <li>Solid wall insulation (more EWI than IWI)</li> <li>Window upgrades</li> <li>Individual heat pumps</li> <li>Roof PV</li> </ul>	EWI may be hampered by physical features such bay windows or by desire to maintain streetscape.
2B Non-terraces solid brick in conservation areas	<ul style="list-style-type: none"> <li>Solid wall insulation (more IWI than EWI)</li> <li>Window upgrades</li> <li>Individual heat pumps</li> </ul>	CA restrictions likely to limit EWI (except of rear elevations and gable walls) and PVs. Heat pumps may also be hampered by planning sensitivities. Window upgrades may include secondary glazing.
3A Mansion blocks / converted street properties.	<ul style="list-style-type: none"> <li>Solid wall insulation (more EWI than IWI)</li> <li>Window upgrades</li> <li>Individual or communal heat pumps</li> <li>Vertical PV</li> </ul>	EWI and vertical PVs may be hampered by physical characteristics and the need to to the entire block despite likely multiple ownership. Individual heat pumps may sometimes be hard to install for mid level flats.
3B Mansion blocks / converted street properties in conservation areas	<ul style="list-style-type: none"> <li>Solid wall insulation (more IWI than EWI)</li> <li>Window upgrades</li> <li>Individual heat pumps</li> </ul>	EWI likely to be rarely possible.
4 Homogenous housing estates (solid or cavity or system)	<ul style="list-style-type: none"> <li>EWI and CWI</li> <li>Window upgrades</li> <li>Individual or communal heat pumps</li> <li>Roof PV</li> </ul>	Likely that this group may break down into more archetypes with specific challenges.
5 Suburban cavity semis/detached with gas boilers	<ul style="list-style-type: none"> <li>CWI</li> <li>Window upgrades</li> <li>Individual heat pumps</li> <li>Roof PV</li> </ul>	Careful detailing between windows and CWI important as possible cold bridge.
6 1950s to 1975 system/cavity built blocks not communal heating	<ul style="list-style-type: none"> <li>CWI and EWI</li> <li>Window upgrades</li> <li>Heat pump or direct electric</li> <li>Vertical PV</li> </ul>	Individual heat pumps may sometimes be hard to install for mid level flats
7 1950s to 1975 system/cavity built blocks with communal heating	<ul style="list-style-type: none"> <li>Community heat pump</li> <li>Vertical PV</li> <li>CWI</li> </ul>	Low carbon community heating may be the most important measure for this type. Need to ensure that the heating system has capacity to adequately heat all flats. Some supporting fabric measures may be required.
8 1983s to 2002 mid-rise flats with electric heating	<ul style="list-style-type: none"> <li>Individual</li> <li>Heat pumps or direct electric with some fabric measures to support</li> </ul>	Locating heat pumps may be challenging
9 1983s to 2002 mid-rise flats with gas heating	<ul style="list-style-type: none"> <li>Individual or communal heat pumps</li> <li>Vertical PV</li> </ul>	Locating heat pumps may be challenging
10 Houses built after 2007 (no fabric needed)	<ul style="list-style-type: none"> <li>Individual heat pump</li> <li>Roof PV</li> </ul>	Assumption that no fabric measures needed should be tested as there may be a performance gap between RdSAP heating estimate and actual
11 Flats built after 2007 (no fabric needed)	<ul style="list-style-type: none"> <li>Individual or communal heat pumps</li> <li>PV</li> </ul>	Assumption that no fabric measures needed should be tested as there may be a performance gap between RdSAP heating estimate and actual

1-6 relay on multiple measures requiring higher degree of coordination. 7-11 relay more on tech and less on fabric, but actual existing performance should be verified. Categories 1-3 rely on SWI. The modelling relies heavily on EWI outside conservation areas and in IWI within. Its likely that a more mixed approach will be required. Categories 1-4 are likely to require the most coordination and these archetypes may therefore require especially highly resolved whole house plans



<b>Committee(s):</b> Housing Management and Almshouses Sub Committee Community & Children's Services Committee	<b>Dated:</b> 20/09/2021 24/09/2021
<b>Subject:</b> Fire Safety Act 2021	<b>Public</b>
<b>Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly?</b>	1, 2, 12
<b>Does this proposal require extra revenue and/or capital spending?</b>	<b>N</b>
<b>If so, how much?</b>	<b>N/A</b>
<b>What is the source of Funding?</b>	<b>N/A</b>
<b>Has this Funding Source been agreed with the Chamberlain's Department?</b>	<b>N/A</b>
<b>Report of:</b> Director of Community & Children's Services Remembrancer	<b>For Information</b>
<b>Report authors:</b> Paul Murtagh, Assistant Director, Housing & Barbican  William Stark Parliamentary Engagement Officer, Remembrancer's Office	

## Summary

This report advises the Committee of the relevant provisions of the Fire Safety Act 2021, which received Royal Assent on the 29 April 2021. The Fire Safety Act amends the Regulatory Reform (Fire Safety) Order 2005 and is one of several measures introduced following the 2017 Grenfell fire tragedy.

## Recommendation

Members are asked to note the report.

## Main Report

### Background

1. The Fire Safety Act 2021 is part of a series of changes to fire safety and building safety that the Government is making following the Grenfell Tower fire in 2017, with further primary and secondary legislation to follow. The Act seeks to enable the delivery of the recommendations of the Grenfell Inquiry Phase 1 report, published in October 2019, by placing beyond doubt that external wall systems, including cladding and the fire doors to individual flats in multi-occupied residential blocks, fall within the scope of the Regulatory Reform (Fire Safety) Order 2005. In introducing the Fire Safety Bill (as it was then), Ministers made clear that legislation will play a role in tackling delay and inaction by building owners and developers in instigating remediation works.



2. Following a strained passage through Parliament, the Fire Safety Bill received Royal Assent on 29 April 2021. The Fire Safety Act, as it became on 29 April 2021, differs from the original Fire Safety Bill in that, it includes two Government amendments with, a new clause dealing with risk-based guidance for fire risk assessments, and the related commencement of that guidance.
3. Parliamentary interest in the passage of the Act coalesced around backbench amendments, in both the Lords and Commons, on prohibiting the passing of resulting remediation costs on to leaseholders and tenants. Various iterations of amendments to this effect were agreed by the Lords and caused considerable Government rebellions in the Commons. However, these were eventually rejected on the final day of the parliamentary session.

### **Current Position**

4. The Government's explanatory notes for the (then) Bill state that the legislation "will be of particular interest to building owners, leaseholders or managers for multi-occupied residential buildings who are likely to be the responsible persons" in ensuring they have assessed the fire safety risks and taken necessary precautions in the buildings they are responsible for. Furthermore, the legislation "will also affirm Fire and Rescue Authorities have the relevant enforcement powers to hold owners or managers to account".
5. The Act is intended to complement the existing powers that local authorities have to take enforcement action against building owners and managers under the Housing Health and Safety Rating System, provided for in the Housing Act 2004 and the Building (Amendment) Regulations 2018. The latter, banned the use of combustible materials within the external walls, and certain attachments to the external walls, for any new building with a storey at least 18 metres in height where the building contains at least one dwelling or, met other certain criteria.
6. During the passage of the Act, the Government successfully introduced two amendments that saw the introduction of a new clause dealing with risk-based guidance for fire risk assessments, and the related commencement of that guidance. The Act amends Article 50 of the Regulatory Reform (Fire Safety) Order 2005 to ensure that risk-based guidance, to be issued to support commencement of the Act, will have the appropriate status to incentivise responsible persons to comply with such guidance. Furthermore, in line with a report by the "Task and Finish Group" (co-chaired by the Fire Sector Federation and the National Fire Chiefs Council) the Act will be commenced for all buildings at the same time and, Government will issue statutory guidance covering the assessment of buildings with a risk-based approach.
7. It should be noted that the Fire Safety Act is far from a 'quick-fix' intended to deal with a specific identified concern. Moreover, the Act has not yet been brought fully into force in England or Wales and, it would seem reasonable to assume that it will only fully come into force when the new guidance is ready. The Act does however, contain provisions (which came into force two months after the Act) allowing government to make future regulations to change the scope of the premises



covered by the Fire Safety Order and to make concomitant changes to fire safety duties.

### **Implications for Housing**

8. Fire safety has been of critical concern for all local authorities and housing associations since the Grenfell tragedy in 2017. Essentially, the Fire Safety Act, first proposed in March 2020, was introduced to clarify who is responsible for managing and reducing the risk of fire in different parts of multi-occupied residential buildings to help prevent further tragedies.
9. The legislation brings new fire safety obligations to some leaseholders, building owners and managers for the building structure, external walls, common parts and doors between the domestic premises and common parts.
10. The Fire Safety Act 2021 amends the Regulatory Reform (Fire Safety) Order 2005 (the FSO) with the intention of improving fire safety in multi-occupancy domestic buildings. Crucially, the external walls of a building and, the fire doors to individual flats must now be assessed as part of the requirement for a fire risk assessment. The Act requires the owners and managers of multi-occupied residential buildings to ensure that the fire risk assessments for such buildings are reviewed and updated to encompass the structure, external walls and flat entrance doors.
11. The specific provisions of the Fire Safety Act 2021 include:
  - The Act applies to all multi-occupied residential buildings and is not dependent on the height of the building. The Act further provides English and Welsh Ministers with a regulation-making power to amend the type of buildings the FSO applies to in the future.
  - The FSO designates those in control of the premises as the Responsible Person for fire safety, imposing on them a duty to undertake assessments and manage risks. The Act now requires all Responsible Persons to reduce, as well as to assess and manage, the fire risks posed by the structure and external walls of the buildings and, by individual doors opening onto common parts of the building.
  - The FSO was enforced by fire and rescue authorities but, the Act allows these authorities to enforce against non-compliance in relation to the external walls and the individual doors opening onto the common parts of the premises.
  - The Act also introduces the concept of 'risk-based' guidance in order to support a proportionate approach towards assessing risk.

### **Ongoing measures for addressing the requirements of the Fire Safety Act 2021**

12. Back in July 2017, an initial detailed report was presented to the Community & Children's Services Committee, the Housing Management & Almshouses Sub-Committee and the Audit and Risk Management Committee updating Members on the City of London Corporation's (CoLC) approach to fire safety in its social housing portfolio. This report informed Members of the progress we had made with matters such as:



- fire risk assessments,
- communication with residents,
- estate management,
- fire safety maintenance and improvement work,
- inspections by the London Fire Brigade (LFB),
- potential future improvement works.

13. Regular update and review reports have been brought back to the Community & Children's Services Committee and the Housing Management & Almshouses Sub-Committee, informing Members of the work that has been and, is being done to enhance the safety of the City of London Corporation's (the Corporation) social housing estates and its residents in the event of fire.

14. As Members will be aware from these reports, there is a significant amount of work that has been/is being done across the Corporation's social housing estates that will address some of the requirements and objectives of the Fire Safety Act 2021 including:

#### Fire Risk Assessments (FRA's)

15. Frankham Risk Management Services Limited completed FRAs for each of our residential blocks of flats in October/November 2017 and, as agreed by Members, these were published on the Corporation's website in June 2018. A subsequent 'Action Plan' was developed in response to the FRA's and, progress against the Action Plan is monitored regularly by the Housing Management & Almshouses Sub Committee.

16. Whilst, understandably, our focus has been on continuing the progress we have made on the improvements identified in the FRA Action Plan, we have recently appointed Turner & Townsend to carry out new Type 3 (with a number of targeted Type 4) FRA's for our housing stock. Turner & Townsend has now commenced this work and, its brief includes a focus on the assessment of external walls and individual flat entrance doors opening onto the common parts of buildings as specifically highlighted in the Fire Safety Act 2021.

#### Fire Doors

17. The Corporation has committed to replacing all front entrance doors in its residential blocks of flats with fire doors that give up to 60 minutes fire resistance (30 minutes as an absolute minimum).

18. GERDA, our specialist appointed contractor, has now commenced work on Phase 1 of this programme (York Way and Holloway Estates) and, has installed several doorsets as 'pilot' installations for the approval of Building Control and the Fire and Rescue Authority. It is expected that this project will be completed within the next 12 to 18 months.



## External Wall Cladding

19. Shortly after the Grenfell tragedy in 2017, the Corporation carried out an assessment of the construction of the external walls to blocks of flats within its social housing portfolio. The blocks of flats are, in the main, traditionally built with no significant areas of wall cladding. Furthermore, there have been no subsequent 'improvement' works carried out to the blocks of flats that has seen the introduction of external wall cladding typically used to improve the level of thermal insulation to traditionally built blocks.

## **Proposals for further measures to address the requirements of the Fire Safety Act 2021**

20. Although the Corporation is taking proactive measures to ensure the continued compliance with relevant fire safety legislation and, wherever possible, pre-empting future legislation, there is still further work to be done. This includes the following:

### Clarification around the role of the Responsible Person

21. Under Article 3 of the FSO, the "responsible person" of a premise (either a building or any part of it) is the person who has control of the premises ("the Responsible Person"), which may include building owners, leaseholders or managers.
22. Since the scope and scrutiny of fire safety obligations have increased significantly, the Responsible Person needs to review and update risk assessment processes accordingly. Once the risk assessment processes are published, the Responsible Person should apply the risk-based guidance (under Section 3 of the Act) in order to comply with his/her duties in Part 2 of the FSO.
23. The clarification provided under the Act, extending the provisions of the FSO set out above, means that the Fire and Rescue Authorities can now better identify the Responsible Person for these parts. This will, by definition, clear the path for enforcement action against and/or prosecution of any Responsible Person who fails to comply with the FSO, which could ultimately lead to unlimited fines and/or criminal prosecutions.
24. To a certain extent, the role of the Responsible Person for the Corporation's social housing estates is currently split between the Estate Managers and technical staff with responsibility for ensuring FRA's are carried out and recommendations acted upon. In view of the extended provisions of the FSO, this is not a sustainable option.
25. Further work is now being done to assess the role of the Responsible Person and, who that named person will be. It does make sense, as is the case currently, that the Responsible Person should be an estate-based manager however, there is a need to provide targeted and specific training for those staff who will officially take on that role. Similarly, there will also be a need to amend Job Descriptions to reflect the additional responsibility that comes with the role. At this stage however,



consideration is also being given to the need for additional specialist resources to carry out the role of the Responsible Person.

#### Commissioning EWS1 Forms for all our housing blocks of flats

26. An EWS1 (External Wall System) form provides independent assurance that a building meets the requirements of the Government's latest standards. It is not a legal requirement however, some lenders are now asking for EWS1 forms before they will consider offering a mortgage. We are receiving an increasing number of requests from our residents for EWS1 forms for this purpose.
27. The Royal Institution of Surveyors (RICS) has produced guidance suggesting that any residential building could require an EWS1 form. For guidance purposes and, for members information:

#### **For buildings over six storeys, an EWS1 form should be required where:**

- there is cladding or curtain walling on the building or,
- where there are balconies that stack vertically above each other and either, both the balustrades and decking are constructed with combustible materials (e.g. timber) or the decking is constructed with combustible materials and the balconies are directly linked by combustible material.

#### **For buildings of five or six storeys, an EWS1 form should be required where:**

- there is a significant amount of cladding on the building or,
- there are ACM, MCM or HPL panels on the building or,
- there are balconies that stack vertically above each other and either, both the balustrades and decking are constructed with combustible materials (e.g. timber), or the decking is constructed with combustible materials and the balconies are directly linked by combustible materials.

#### **For buildings of four storeys or fewer, an EWS1 form should be required where:**

- there are ACM, MCM or HPL panels on the building.

28. Currently, the Corporation does not provide EWS1 forms to residents who request one and, this is creating problems for residents seeking mortgages. The Corporation has very few blocks of flats that fall into the categories set out in Paragraph 27 above and as stated previously, there is no legal requirement for the Corporation to provide EWS1 forms.
29. Officers are currently reviewing the various options around EWS1 forms which include:
- not providing them.



- providing them for all blocks of social housing flats to give independent assurance to the Corporation and its residents on the structure and safety of the external wall construction (estimated cost of £100,000).
- to continue with a risk-based approach based on criteria we gather from our records, surveys and FRA's to allow us to determine the risk level and prioritise those we deem there is a need for an intrusive assessment to be conducted.

30. It should be noted that currently, due to national demand and shortage of skilled professionals who can carry out the required assessments, EWS1 forms are taking a considerably long period of time to acquire.

### **Further Legislation – Building Safety Bill**

31. On 5 July 2021, the Secretary for Housing Robert Jenrick introduced a revised draft of the Building Safety Bill into the House of Commons. The revised Bill follows a three-year scrutiny and public consultation process and represents a wholesale reform of the building safety regime, in line with the recommendations of Dame Judith Hackitt's 2018 Independent Review: Building a Safer Future. The Bill sets out a new regulatory regime aimed at ensuring the safety of residents in residential buildings.

32. The Building Safety Bill establishes a much tighter regulatory regime for buildings above 18 metres high (referred to as 'higher risk' buildings) and includes:

- a new Building Safety Regulator with approval, enforcement and prosecutorial powers.
- mandatory reporting of structural and fire safety occurrences.
- new obligations on Clients, Principal Designers and Principal Contractors, with 'Gateway' points at design, construction and completion to ensure fire and structural safety is considered at every stage of a building's development.
- the creation of new Accountable Person and Building Safety Manager roles to ensure that fire and structural safety continues to be managed throughout a building's lifetime.
- criminal liability for both companies and their directors for breaches – with unlimited fines and imprisonment for up to two years.

33. The Bill is expected to receive Royal Assent in the Spring next year (2022). The Government has indicated that the first round of provisions will come into force within 6-12 months of the Bill receiving Royal Assent (October 2022 to April 2023). The bulk of the new regulatory regime will likely come into force within 12-18 months of Royal Assent (April 2023 to October 2023). Certain obligations will, and have come into force earlier, such as the Gateway 1 process for construction and major refurbishment of higher-risk buildings (1 August 2021).

34. The Building Safety Bill is a much broader piece of legislation than the Fire Safety Act 2021, covering risks over and above fire safety (flooding, wind loading etc). However, the Bill has links to the Fire Safety Act 2021 and, officers will be giving



due regard to the implications for the Building Safety Bill when finalising proposals for dealing with the requirements of the Fire Safety Act 2021.

## **Corporate & Strategic Implications**

### Strategic Implications

35. The proposals contained in this report are consistent with, align with and support the delivery of the Corporate Plan with particular reference to the following:

- Outcome 1 – People are safe and feel safe.
- Outcome 2 – People enjoy good health and wellbeing.
- Outcome 12 – Our spaces are secure, resilient and well-maintained.

## **Conclusion**

36. The new Fire Safety Act 2021 brings significant new fire safety obligations to building owners and managers for the building structure, external walls, common parts and doors between the domestic premises and common parts.

37. This report sets out the work that officers have done and are doing to ensure that the Corporation is best placed to comply fully with the requirements of the new Fire Safety Act 2021.

38. Members should note that further reports will be brought back to the relevant Committees in due course, setting out the progress that has been made and, the subsequent proposals for ensuring compliance with the legislation.

## **Appendices**

None

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# Agenda Item 8

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<b>Committees:</b>	<b>Dates:</b>
Corporate Projects Board – For decision	01/09/2021
Community and Children’s Service Committee – For decision	24/09/2021
Projects Sub-Committee – For decision	15/09/2021
<b>Subject:</b> Windows Programme & Common Parts Redecorations – Golden Lane Estate  <b>Unique Project Identifier: 11961</b>	<b>Gateway 3 Complex Issue Report</b>  <b>Public</b>  <b>(Appendix 2 Non-public)</b>
<b>Which outcomes in the City Corporation’s Corporate Plan does this proposal aim to impact directly?</b>	<b>1,2,4,10,11,12</b>
<b>Does this proposal require extra revenue and/or capital spending?</b>	<b>N</b>
<b>If so, how much?</b>	<b>£</b>
<b>What is the source of Funding?</b>	<b>HRA Capital</b>
<b>Has this Funding Source been agreed with the Chamberlain’s Department?</b>	<b>Y</b>
<b>Report of:</b> Director of Community & Children's Services	<b>For Decision</b>
<b>Report Author:</b> Jason Hayes, Head of Major Works, Community & Children’s Services	

<b>1. Status update</b>	<p><b>Project Description:</b> Repair, installation of secondary glazing, or replacement of existing single-glazed windows with double-glazed units and redecoration of internal and external common parts.</p> <p><b>RAG Status:</b> Amber (Amber at last report to Committee).</p> <p><b>Risk Status:</b> Low (risk status was not included in the G3 report templates at last report to Committee in 2017).</p> <p><b>Total Estimated Cost of Project (excluding risk):</b> £8,463,696</p> <p><b>Change in Total Estimated Cost of Project (excluding risk):</b> £66,418</p> <p><b>Spend to Date:</b> £419,527</p>
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	<p><b>Costed Risk Provision Utilised: N/A</b></p> <p><b>Funding Source: HRA Capital Funding</b></p> <p><b><u>Summary</u></b></p> <p>This report covers the requirements to progress the design stage of this project. Previous estimates for consultancy were £749,757. Tender exercises have now been completed and the budget requires increasing to £816,172.</p> <p><b><u>Recommendations</u></b></p> <ol style="list-style-type: none"> <li>1. Approve the budget for the design team fees, including funding for; a Quantity Surveyor, Communications Consultant, planning fees and enhanced advisory fees, enabling works, access to ARUP drawings and additional detailed acoustic surveys.</li> <li>2. Approve further staff costs.</li> </ol> <p><b><u>Progress</u></b></p> <ul style="list-style-type: none"> <li>• Design team – A review of the programme has meant that Crescent House has been prioritised over other blocks on the estate. Costs reflect the need to submit multiple planning applications and the possibility of separate tenders for the block archetypes. Crescent House is currently suffering significant issues, including further deterioration of windows and major repairs. It has seen increased attention from residents during the colder months.</li> <li>• Quantity surveyor – Following a more detailed review on the options available, a quantity surveyor input is now required to cost the options for repair, refurbishment or replacement. Any previous costs will be superseded by this exercise now that designs for the replacement options are being developed.</li> </ul> <p>A tender exercise has been undertaken, and Keegans are the successful bidder.</p> <ul style="list-style-type: none"> <li>• Communications consultant – As we are now engaging with key stakeholders as part of the planning process, we are looking to appoint a communications team to develop a robust stakeholder strategy and clear communications plan. The communications consultant will work very closely with the design team and quantity surveyor. They will be engaging with residents and other key stakeholders, and drawing up a statement of community involvement as this will be key in the planning process.</li> </ul>
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	<p>A tender exercise has been undertaken, and Thorncliffe are the successful bidder.</p> <ul style="list-style-type: none"> <li>• Planning fees – Following extensive engagement at pre-planning meetings, funding is also needed to cover enhanced advisory fees from Historic England.</li> <li>• Enabling works – As we are progressing with the design proposals and investigating the feasibility of various options, there is now a need for enabling works. This will allow the structural surveyor, appointed under the design team to assist Studio Partington Architects in assessing the feasibility around refurbishment or replacement options. It will also help support the delivery information.</li> <li>• Specialist design input – The planning application requires more detail following pre-planning application meetings and therefore requires specialist manufacture input. This is only for Crescent House at this stage but may be required for other blocks as their design progresses. This will also aid the delivery information for the project and may help save time long term.</li> <li>• ARUP drawings – To support the structural survey, drawings are required for the structural assessment across the estate. We are estimating a budget requirement of £35,000 to cover all blocks based on costs for Crescent House. Depending on the detail available, this may reduce the amount of opening-up works that may be required, reducing costs elsewhere.</li> <li>• Acoustic surveys – Although some accommodation had been made within the brief for the design team's remit, we are now looking to incorporate more in-depth acoustic surveys across the whole estate, with specific focus on the Crescent House elevations facing Goswell Road.</li> </ul>
<b>2. Requested decisions</b>	<p><b>Next Gateway:</b> Gateway 4 - Detailed Options Appraisal (Complex)</p> <p><b>Requested Decisions:</b></p> <ol style="list-style-type: none"> <li>1. That a budget of £569,501 is approved to reach the next Gateway; this consists of: <ol style="list-style-type: none"> <li>a. £221,501 of the remaining fees to cover the appointment of the design team</li> <li>b. £70,000 to cover the appointment of the quantity surveyor</li> </ol> </li> </ol>



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	<ul style="list-style-type: none"> <li>c. £70,000 to cover the appointment of the communications consultant</li> <li>d. £22,000 for planning fees</li> <li>e. £90,000 for enabling works</li> <li>f. £35,000 to access ARUP drawings</li> <li>g. £21,000 to accommodate detailed acoustic surveys</li> <li>h. £40,000 to cover additional staff fees.</li> </ul>																						
<b>3. Budget</b>	<p><b>Design team</b></p> <p>Reprioritising blocks and multiple planning applications has led to an increase in fees to cover this additional element of work. As pre-application meetings have progressed, there has been a requirement to provide more information as part of the planning application. This level of detail will save time and potentially cost, post-application with potential planning conditions.</p> <table border="1"> <thead> <tr> <th>Item</th><th>Cost (£)</th></tr> </thead> <tbody> <tr> <td>Works</td><td>£7,497,573</td></tr> <tr> <td>Consultancy (design team)</td><td>£507,672</td></tr> <tr> <td>Consultancy (communications)</td><td>£70,000</td></tr> <tr> <td>Consultancy (quantity surveyor)</td><td>£70,000</td></tr> <tr> <td>Planning Fees (City of London &amp; Heritage England)</td><td>£22,000</td></tr> <tr> <td>ARUP (access to design drawings)</td><td>£35,000</td></tr> <tr> <td>Enabling works</td><td>£90,000</td></tr> <tr> <td>Acoustic surveys</td><td>£21,500</td></tr> <tr> <td>Staff costs</td><td>£149,951</td></tr> <tr> <td><b>Total (excl. spend to date)</b></td><td><b>£8,463,696</b></td></tr> </tbody> </table> <p><b>Costed Risk Provision requested for this Gateway: N/A</b></p>	Item	Cost (£)	Works	£7,497,573	Consultancy (design team)	£507,672	Consultancy (communications)	£70,000	Consultancy (quantity surveyor)	£70,000	Planning Fees (City of London & Heritage England)	£22,000	ARUP (access to design drawings)	£35,000	Enabling works	£90,000	Acoustic surveys	£21,500	Staff costs	£149,951	<b>Total (excl. spend to date)</b>	<b>£8,463,696</b>
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<b>4. Issue description</b>	<p>As described above, additional funding of professional fees are required to continue to develop the project through rising complexity:</p> <ul style="list-style-type: none"> <li>1. £221,501 to cover the remainder for the design team budget</li> <li>2. £70,000 to cover the appointment of the quantity surveyor</li> </ul>																						



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	3. £70,000 to cover the appointment of communications consultant 4. £22,000 to cover City of London and Heritage England fess & advice 5. £90,000 to cover enabling works 6. £35,000 to access design/construction drawings (ARUP) 7. £21,500 for acoustic surveys 8. £40,000 to cover additional staff fees.
<b>5. Options</b>	Not applicable, as the only alternative is to close the project.

### **Corporate & Strategic Implications**

6. Financial implications – Market analysis on recent tendered window replacement work for other estates saw increases against original forecasted costs.
7. Resource implications – N/A
8. Legal implications – N/A
9. Risk implications – N/A
10. Equalities implications – N/A
11. Climate implications – N/A
12. Security implications – N/A

### **Conclusion**

13. **Next steps:** to progress the design to aid consultation with residents and support the planning application on the outline proposals.

### **Appendices**

<b>Appendix 1</b>	Project Coversheet
<b>Appendix 2</b>	Risk Register ( <b>Non-Public</b> )

### **Jason Hayes**

Head of Major Works

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# Project Coversheet

## [1] Ownership & Status

**UPI: 11961**

**Core Project Name:** Windows Programme & Common Parts Redecorations – Golden Lane Estate

**Programme Affiliation** (if applicable): n/a

**Project Manager:** Jason Crawford

**Definition of need:** Repair, refurbishment, or replacement of existing single glazed windows with double glazed units and redecoration of internal and external common parts.

**Key measures of success:**

- Increased resident satisfaction.
- Improvement thermal efficiency in the Standard Assessment Procedure (SAP) energy performance rating of our housing assets.
- Reduction in ongoing repair and maintenance costs.

**Expected timeframe for the project delivery:** Aug 2022 – Dec 2024

**Key Milestones:** Phased Construction (estimated start dates)

- Crescent House Aug 2022
- Cullum Welch Dec 2022
- Basterfield House May 2023
- Bayer House Oct 2023
- Bowater House Jan 2024
- Cuthbert Harrowing Apr 2024
- Hatfield House Jul 2024
- Stanley Cohen Oct 2022
- Great Arthur Sept 2022

**Are we on track for completing the project against the expected timeframe for project delivery?** No

Impact of covid meant that inspections and surveys had to be deferred but a lot of the design work and research was undertaken during lockdown to progress the project as far as possible. Most of the external surveys could be carried out during lockdown, and most of the internal surveys were undertaken in the short period between the easing of the first lockdown and the effect of the second lockdown coming into effect.

**Has this project generated public or media impact and response which the City of London has needed to manage or is managing?**

Following the leaseholder challenges to the great Arthur house cladding project we are applying lessons learned and are mindful of the potential for similar action being taken on the Windows project.



## **[2] Finance and Costed Risk**

### **Headline Financial, Scope and Design Changes:**

#### **'Project Briefing' G1 report:**

- Total Estimated Cost (excluding risk): £4,333,000
- Costed Risk Against the Project: n/a
- Estimated Programme Dates:
  - Gateway 1 – September 2013.
  - Gateway 2 – September 2013
  - Gateway 3 – March 2014
  - Gateway 4 – March 2014
  - Gateway 5 - as per each individual project.

*Scope/Design Change and Impact: n/a*

#### **'Project Proposal' G2 report (as approved by PSC 26/09/2013):**

- Total Estimated Cost (excluding risk): £4,333,000
- Resources to reach next Gateway (excluding risk) £175,000
- Spend to date: non reported
- Costed Risk Against the Project: n/a
- CRP Requested: n/a
- CRP Drawn Down: n/a
- Estimated Programme Dates: n/a

*Scope/Design Change and Impact: n/a*

#### **'Issues report' (as approved under 'Urgency' by PSC 06/06/2017):**

- Total Estimated Cost (excluding risk): £12,610,000 (all blocks/estates)
- Resources to reach next Gateway (excluding risk): n/a
- Spend to date: £43,750
- Costed Risk Against the Project: n/a
- CRP Requested: n/a
- CRP Drawn Down: n/a
- Estimated Programme Dates:
  - Gateway 3: October 2017
  - Gateway 5: To be determined.

*Scope/Design Change and Impact: as stated in the Issues report, the scope had changed considerably with the addition of new blocks as well as whole estates which resulted in a considerable uplift in the costs reported at the previous Gateway. At Gateway 2 estimates were £4,333,000, at the time of writing the Gateway 3/4 report estimates were £12,610,000 for all blocks and estates that had been subsequently added.*

#### **'Outline Options Appraisal' G3 report (as approved by PSC 08/10/2017):**

- Total Estimated Cost (excluding risk): £16,905,452
- Resources to reach next Gateway (excluding risk): £449,854
- Spend to date: £18,335.
- Costed Risk Against the Project: n/a
- CRP Requested: n/a



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- CRP Drawn Down: n/a
- Estimated Programme Dates: n/a

*Scope/Design Change and Impact: as per the above explanation (see issues report). Following PSC approval of the issues report in October 2017 it was agreed to split the fringe estates into separate projects and for these to proceed along the Regular route and that a separate G3 report should be submitted for approval for the Golden Lane Estate to proceed separately along the Complex route.*

**‘Issues report’ (pending approval by PSC 15/09/2021):**

- Total Estimated Cost (excluding risk): £8,463,696
- Resources to reach next Gateway (excluding risk): £569,501
- Spend to date: £419,527
- Costed Risk Against the Project: n/a
- CRP Requested: n/a
- CRP Drawn Down: n/a
- Estimated Programme Dates:
  - Crescent House Aug 2022
  - Cullum Welch Dec 2022
  - Basterfield House May 2023
  - Bayer House Oct 2023
  - Bowater House Jan 2024
  - Cuthbert Harrowing Apr 2024
  - Hatfield House Jul 2024
  - Stanley Cohen Oct 2022
  - Great Arthur Sept 2022

*Scope/Design Change and Impact: As well as the impact of Covid on the programme we have been instructed to re-examine the scope in order to prioritise Crescent House due to the continuing deterioration of the timber frame façade, specifically because of the heritage significance of the block. Working with the Design Team we have now split the blocks into archetypes based on design and material of the windows, and we are looking to adopt a phased approach to planning, tender and construction. Whereas the original approach was to submit a single planning application and listed building consents, it has become apparent that the best approach is to submit separate planning applications for each archetype. This has led to an increase in costs for the Design Team and Planning Consultant. Also, we are now looking to appoint a Quantity Surveyor to undertake detailed cost analysis as well as a Communications Consultant to draw up the statement of community involvement as part of the requirements around resident consultations and in support of the planning process.*

**Total anticipated on-going commitment post-delivery [£]:** Following completion of any works and the end of the defects liability period any ongoing costs will be the remit of periodic repairs and maintenance as stipulated in warranties.

**Programme Affiliation [£]:** n/a



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<b>Committee</b>	<b>Dated:</b>
Community and Children's Services Committee	24/9/2021
<b>Subject: Golden Lane Sport and Fitness Centre lease extension (2022- 23)</b>	<b>Public</b>
<b>Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly?</b>	<b>1, 2, 3, 4</b>
<b>Does this proposal require extra revenue and/or capital spending?</b>	<b>N</b>
<b>If so, how much?</b>	<b>N/A</b>
<b>What is the source of funding?</b>	<b>N/A</b>
<b>Has this funding source been agreed with the Chamberlain's Department?</b>	<b>N/A</b>
<b>Report of:</b> Andrew Carter, Director of Community and Children's Services	<b>For Decision</b>
<b>Report author:</b> Greg Knight, Senior Commissioning Manager, Commissioning and Partnerships	

## Summary

At Community and Children's Services Committee in November 2020 Commissioning presented a report titled 'Golden Lane Sport and Fitness Centre management- Leisure Services 2022'. The report set out the options to deliver the leisure service from January 2022, when the current contract with Fusion Lifestyle expires.

The report recommended a short-term solution was progressed to allow a competitive procurement process to be completed to appoint a new provider on a long-term contract in 2023. This was recommended primarily to allow the market to recover from the sustained impact caused by the pandemic and to deliver improved contractual terms for the City.

After reviewing the options, an extension of the current management contract with Fusion Lifestyle until March 2023 was identified as the best approach. This was approved under delegation by Community and Children's Services category board in July.

In order to progress with the contract extension, Community and Children's Services committee approval is required to extend the lease held by Fusion Lifestyle for 1 January 2022 until March 2023. Under the terms of the lease Fusion Lifestyle are charged at the rate of a peppercorn per annum. As the lease extension will not achieve market rental value, under the scheme of delegation, Committee approval is required.

The extension to the lease under these conditions is recommended in order to support the delivery of the Corporate Plan and Departmental Business Plan objectives, whilst removing the implications of a vacant property, such as the need to pay mothballing costs.



## **Recommendation**

Members are asked to:

- Approve the extension of the lease of Golden Lane Sport and Fitness Centre with Fusion Lifestyle, from 1 January 2022 until 31 March 2023, charged at the rate of a peppercorn per annum.

## **Main Report**

### **Background**

1. The Golden Lane Sport and Fitness Centre management contract is held by Fusion Lifestyle, a registered charity that provides public sector sports and leisure management. The initial contract runs until 31 December 2021 and includes an optional five-year extension period. Alongside the management contract, Fusion Lifestyle hold a lease for the building and are charged at the rate of a peppercorn per annum.

### **Current Position**

2. After reviewing the options to implement a short- term contract, an extension of the current management contract with Fusion Lifestyle until 31 March 2023 was identified as the recommended approach. This was recommended primarily to allow the market to recover from the sustained impact caused by the pandemic and deliver improved contractual terms for the City.
3. The recommended contract extension was completed in consultation with the chairman of Community and Children's Services committee and approved under delegation by Community and Children's Services category board in July 2021.

### **Proposals**

4. In order to deliver the service, the lease for the centre which Fusion Lifestyle currently hold needs to be extended for the same period. As the lease is charged at the rate of a peppercorn per annum market rental will not be achieved. Under the scheme of delegation Community and Children's Services committee approval is required to issue the extension under these terms.
5. The extension to the lease under these conditions is recommended in order to support the delivery of the Corporate Plan and Departmental Business Plan objectives, whilst removing the implications of a vacant property, such as the need to pay mothballing costs.

### **Options**

6. The following options are proposed:

**Approve the proposed extension of the lease**



This option will ensure that the management of Golden Lane Sport and Fitness Centre is sustained from 1 January 2021 until 31 March 2023. It will allow for a competitive procurement to be completed to appoint a new provider on a long-term contract and deliver the best contractual terms for the City.

### **Reject the proposed extension of the lease**

Depending on the grounds for rejection, this option will either result in commissioning completing further negotiations with Fusion Lifestyle, in order to achieve market value, or closure of the centre from 2022. Negotiations to date indicate that Fusion Lifestyle are unwilling to proceed with a contract extension that includes a rental. If the centre is closed the City will need to cover the costs of mothballing the building, which will exceed the revenue costs of proceeding with the proposed contract extension with Fusion Lifestyle.

### **Corporate & Strategic Implications**

7. The commissioning and contract management of the Golden Lane Sport and Fitness Centre is focused on the delivery of the Corporate Plan and Departmental Business Plan objectives, most notably the outcome to 'Contribute to a flourishing society'. It aims to support the sub aims that people are safe and feel safe, people enjoy good health and wellbeing, people have equal opportunities to enrich their lives and reach their full potential, and communities are cohesive and have the facilities they need.

### **Financial implications**

8. As the lease for the centre is to be issued at the rate of a peppercorn per annum the recommendation results in the opportunity cost of not achieving market rental.

### **Resource implications**

9. Not applicable.

### **Legal implications**

10. The legal implications relating to extending the lease and the contract have been considered fully.

### **Risk implications**

11. Not applicable.

### **Equalities implications**

12. The introduction of a new community sports development plan in 2021 sets out the action plan to increase participation amongst priority groups in the City. The themes within the



plan include increasing participation amongst inactive residents, over 50-year olds, young people and residents living in the East of the City.

13. Examples of actions in progress include launching health walks in the East of the City, reinstating Yoga and Pilates sessions in Portsoken and providing swimming for young people with SEND. Commissioning will continue to ensure the public Sector Equality Duty 2010 is met through contract management, the monitoring of key performance indicators and working with Fusion Lifestyle to meet emerging needs.

### **Climate implications**

14. The draft lease Heads of Terms have the inclusion of an energy efficiency term in order to address the requirements of the City's Climate Action Strategy.

### **Security implications**

15. Not applicable.

### **Conclusion**

16. Members are asked to approve the extension of the lease of Golden Lane Sport and Fitness Centre with Fusion Lifestyle, from 1 January 2022 until 31 March 2023, at the rate of a peppercorn per annum. The extension of the lease under these terms will support the delivery of Corporate Plan and Departmental Business Plan objectives, whilst removing the implications of a vacant property, such as the need to pay mothballing costs. The recommendation will support the immediate sustained provision from the centre and will allow for a competitive procurement to be completed to appoint a provider on a longer-term basis.

### **Appendix**

- None

### **Greg Knight**

Interim Senior Commissioning Manager, Commissioning and Partnerships

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<b>Committee:</b>	<b>Dated:</b>
Culture Heritage and Libraries Community and Children's Services	<b>22/09/2021</b> <b>24/09/2021</b>
<b>Subject:</b> Barbican & Community Libraries – Library Strategy	<b>Public</b>
Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly?	<b>2, 3, 4, 9 and 12</b>
Does this proposal require extra revenue and/or capital spending?	<b>N</b>
If so, how much?	<b>N/A</b>
What is the source of Funding?	<b>Revenue funding</b>
Has this Funding Source been agreed with the Chamberlain's Department?	<b>Y</b>
<b>Report of:</b> Andrew Carter, Director of Community and Children's Services	<b>For Information</b>
<b>Report author:</b> Carol Boswarthack, Head of Barbican & Community Libraries	

## Summary

Prior to the onset of the COVID-19 pandemic, significant work had been put into a new strategy for the City's three lending libraries. This strategy is now complete, and clearly sets out the priorities for the section. The strategy adequately reflects the requirements of the Corporate Plan and the Department of Community and Children's Services (DCCS) Business Plan.

Over the course of the pandemic, staff adopted the strategy's vision and principles, and this has greatly contributed to the section's subsequent innovative, successful and well-appreciated work for all its communities.

## Recommendation

Members are asked to:

- Note this report

## Main Report

### Background

1. The City of London has three lending libraries: Barbican Library; Shoe Lane Library; and Artizan Street Library and Community Centre. Together these comprise Barbican & Community Libraries (B&CL).
2. Public libraries are a statutory service and the Public Libraries and Museums Act 1964 provides for the free lending of books. In recent years, the Department for Digital, Culture, Media & Sport (DCMS) Library Taskforce has



redefined libraries as community hubs with trusted staff, offering safe, neutral community spaces to all customers. As such, our lending libraries are perfectly positioned to carry out a range of services and activities that have a positive impact on many aspects of our customers' lives, including their health and wellbeing. In addition to the provision of comprehensive lending stock, modern library priorities include social inclusion and social mobility, alongside the more traditional activities of promoting reading for pleasure, supporting literacy and learning and providing access to culture. Public computers with internet access and a range of Microsoft products are standard in all UK public libraries.

3. The City's libraries lend digital and physical stock: eBooks, eAudiobooks, eMagazines and eComics are available to download, alongside other digital services such as language learning, streaming music and video and online reference tools. The majority of these services are also accessible remotely.
4. Our libraries are well used, with around 23,000 members who borrowed 421,962 physical items of stock in 2019/20, the last full year prior to the COVID-19 pandemic. Most of our members are City workers.
5. Since around 2009, there has been significant joined-up working between the lending libraries and colleagues within the DCCS, especially around working with children and families. In 2017, the Department of Culture, Heritage and Libraries was disbanded and B&CL moved to the Department of Community and Children's Services (DCCS). Since that time, library staff have worked to further embed the priorities of the Department and have reinvented the service as community hubs.
6. A library strategy is key to ensuring that our revised vision and priorities are embedded in all we do, and work on this strategy began in 2019. All B&CL staff were encouraged to help shape the strategy and, throughout 2019, the Head of B&CL ran several staff workshops in all three libraries to examine the current situation, future ambitions, challenges and solutions to achieving these ambitions.

### **Current Position**

7. This strategy is informed by information from the regular B&CL Public Library Users' Survey, comments and suggestions received from service users, and the output of the staff workshops. It addresses the requirements of the Corporate Plan and the Departmental Business Plan.
8. At the heart of the strategy are a set of principles which staff will use to shape our services. The principles are:

We aim to provide:

- a library service that inspires and delights all our customers
- a service that delivers the aims of the City of London Corporation and the business objectives of the DCCS
- a service that celebrates diversity and promotes equality



- a service that actively works with partners to provide enhanced services for all our customers
  - a sustainable, efficient, responsive and relevant public library service that provides value for money, enhances lives and actively engages with all our customers, regardless of age, race, gender, or physical and mental ability
  - services that are co-produced with customers wherever possible
  - library buildings that are safe, neutral and welcoming to all
  - a full enquiries service carried out by expert, fully trained staff
  - the very best stock, customer services, activities and events
  - technology that enhances the effective delivery of our services.
9. The strategy also addresses a number of challenges currently facing the library service, along with potential solutions to these challenges.
10. The strategy was written by the B&CL Senior Management Team comprising the Head of B&CL and the two Principal Librarians (Barbican Library, and Shoe Lane and Artizan Street Libraries). Full consultation with colleagues in the Corporate Strategy and Performance Team took place.
11. Although work on the strategy started prior to work on the Target Operating Model (TOM), the strategy addresses many of the TOM principles, including but not exclusive to, greater efficiency, tackling silos and working more corporately.
12. During the COVID-19 pandemic, the Section benefitted greatly from the work that had already taken place on this strategy. One example is that plans around better digital engagement were already well-developed and, consequently, the challenge to staff to create “a Library Without Walls” was enthusiastically accepted: our first digital events and services were available online within a week of the libraries closing in March 2020. Throughout the pandemic, the range of diverse online activities for customers of all ages continued to develop. Additionally, a full enquiries service was maintained throughout, and customers were able to request and receive essential remote, digital skills training.

### **Corporate & Strategic Implications**

13. Strategic implications – The Library Strategy is relevant to the following City key priorities (Corporate Plan 2018–23):
- To provide modern, efficient and high-quality local services, including policing, within the Square Mile for workers, residents and visitors
  - To provide valued services, such as education, employment, culture and leisure, to London and the nation.

It is also relevant to the following DCCS strategic aims:



- Priority Potential: People of all ages can achieve their ambitions through education, training and lifelong learning
- Priority Independence, Involvement and Choice: People of all ages can live independently, play a role in their communities and exercise choice over their services
- Priority Community: People of all ages feel part of, engaged with and able to shape their community.

14. The vision of B&CL is to help individuals and communities live their best lives by supporting:

- reading and literacy
- health and wellbeing
- social mobility
- social interaction
- culture and creativity.

15. Financial implications – N/A

16. Resource implications – N/A

17. Legal implications – N/A

18. Risk implications – N/A

19. Equalities implications – N/A

20. Climate implications – N/A

21. Security implications – N/A

## **Conclusion**

22. This new strategy for B&CL clearly sets out the priorities for the libraries and is closely aligned to the Corporate Plan. It will assist the staff to continue to shape a modern and efficient service which is relevant to all its communities.

## **Appendices**

- Appendix 1 – Barbican & Community Libraries Library Strategy 2021–2023

### **Carol Boswarthack**

Head of Barbican & Community Libraries  
Department of Community and Children's Services

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## **CITY OF LONDON CORPORATION**

### **Department of Community and Children's Services**

Barbican &  
Community  
**LIBRARIES**

### **Library Strategy 2021–2023**



## **Foreword from the Chairmen of the Culture Heritage and Libraries and Community and Children's Services Committees**

Welcome to the Barbican & Community Libraries Strategy. This document aims to transform your view of what a modern, vibrant library service can achieve and, in doing so, we hope to destroy a few myths and challenge stereotypes.

Our lending library service is agile and proactive. It is constantly evolving and developing to anticipate and meet the needs of all our service users – current and potential. Throughout the COVID-19 pandemic, our library staff provided customers of all ages with a range of new and imaginative digital services alongside COVID-safe physical services, many of which were described as “a lifeline” by our customers.

We are immensely proud of our three lending libraries which offer all our City of London communities new and innovative services alongside all the much-loved traditional ones.

Wendy Hyde  
Chairman of Culture  
Heritage and Libraries Committee



Ruby Sayed  
Chairman of  
Community and Children's  
Services Committee





## Introduction



Barbican & Community Libraries is the service name for the City's three lending libraries. These are:

### **Barbican Library**

Situated on level 2 of the Barbican Centre, this is a major London library and the City's largest public library. It has a separate children's library and contains one of the UK's biggest and best-used public music libraries.

### **Shoe Lane Library**

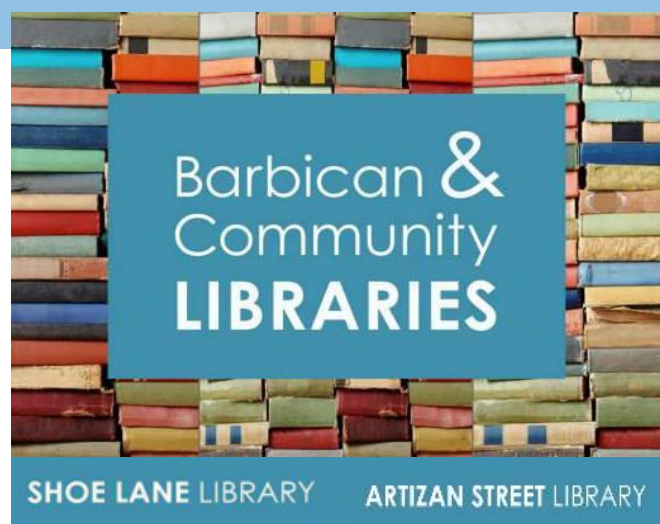
Shoe Lane Library is a popular and well-used library, housed in the Deloitte building in the heart of the City's business district.

### **Artizan Street Library and Community Centre**

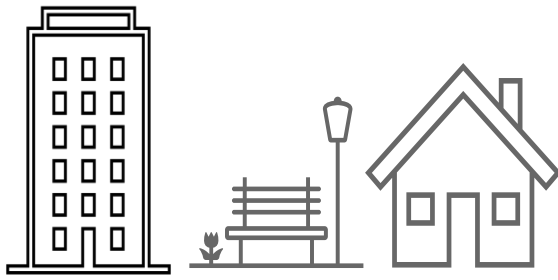
This is the City's newest library, located in the east of the City. It has four hireable rooms and the staff provide a public library, a community centre and frontline housing services to the local community.

This strategy sets out the City of London Corporation's (City Corporation) vision, approach and commitment to the provision of its lending libraries.

## Our Customers







The City has a small residential population of 7,700 <sup>[1]</sup>

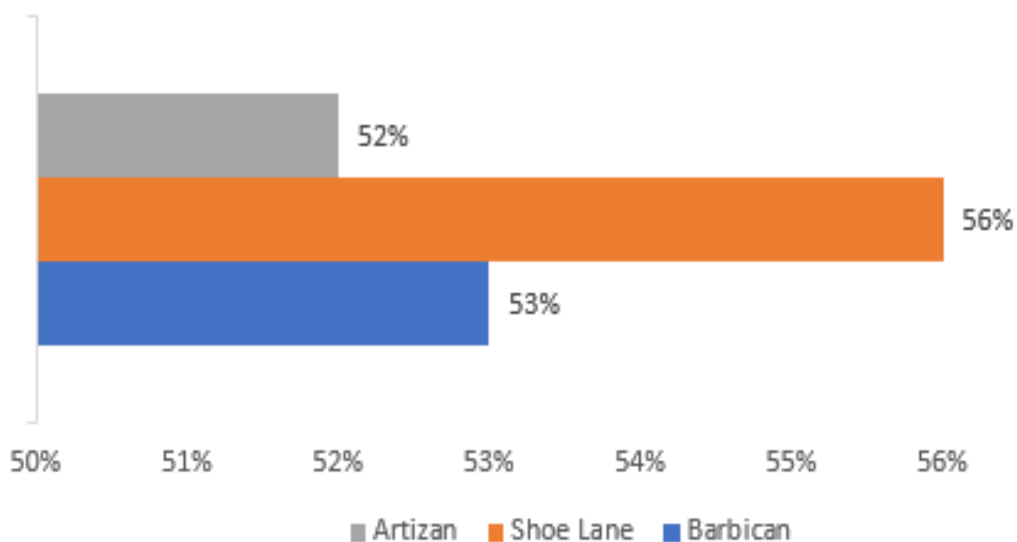


Most of our c.23,000 library members are aged between 25–64

We also serve residents from fringe boroughs, students and visitors to the City



## Slightly more men than women are members of our libraries



<sup>[1]</sup> <https://www.london.gov.uk/in-my-area/city-london>



## Our Vision



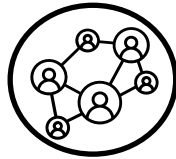
To help individuals and communities to live their best lives by supporting:



Reading and  
Literacy



Health and  
wellbeing



Social  
Mobility



Equality and  
Diversity



Culture &  
Creativity



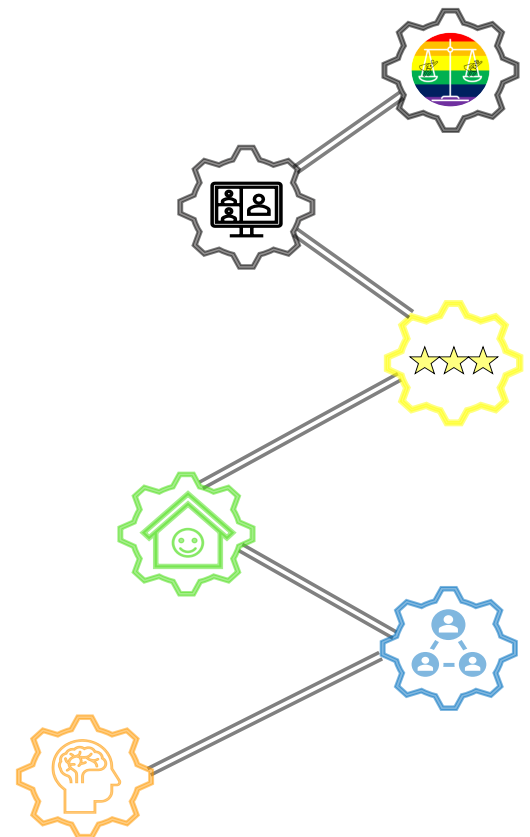
Social  
Interaction

## Our Principles



We aim to provide:

- a library service that inspires and delights all our customers
- a service that delivers the aims of the City of London Corporation and the business objectives of the Department of Community and Children's Services
- a service that celebrates diversity and promotes equality
- a service that actively works with partners to provide enhanced services for all our customers
- a sustainable, efficient, responsive and relevant public library service that provides value for money, enhances lives and actively engages with all our customers regardless of age, race, gender, or physical and mental ability
- services that are co-produced with customers wherever possible
- library buildings that are safe, neutral and welcoming to all
- a full enquiries service carried out by expert, fully trained staff
- the very best stock, customer services, activities and events
- technology that enhances the effective delivery of our services.







People tell us they use our libraries for many different reasons including:

## Borrowing books, CDs and DVDs

Including downloading/streaming from our extensive digital offer.



## Supporting formal education and informal lifelong learning

Library talks, events, exhibitions and activities are provided for people of all ages and interests alongside comprehensive book stock. Our extensive services include free use of library computers providing access to the Internet, IT assistance and training, and much more.



## Supporting their own health and wellbeing

Including smoking cessation, weight management, health checks, and Dragon Café in the City – a partnership with Business Healthy and Mental Fight Club that provides innovative and diverse wellbeing activities to residents and City Workers.



## Combatting loneliness (social inclusion)

Public libraries provide a shared space where people feel they belong, are comfortable visiting on their own, and can access help at their own pace. In 2017, the City of London Corporation published a report, *Improving Social Wellbeing in the City of London*<sup>[2]</sup> in which a Libraries First approach to social inclusion was formally adopted.



## Access to culture and recreation to achieve a healthy work–life balance

Our offer also includes a Music Library with expert staff, music scores and CDs for loan, listening booths, practice pianos, services to local choirs and orchestras and high-profile exhibitions. It has received four “Excellence” awards from the International Association of Music Librarians, Archives and Documentation Centres. All our libraries have reading groups, and all offer a programme of talks, activities and events.



Our services for children, young people and families are heavily used and highly valued and all our libraries offer a wide range of children’s centre services.



Our highly trained staff provide a full information and enquiries service at all locations.







## 1. The Public Libraries and Museums Act 1964

<https://www.legislation.gov.uk/ukpga/1964/75> (amended by the Local Government Act 1972) provides the statutory framework for local authorities to provide a “comprehensive and efficient” public library service including the free loan of books to those who live, work or study within the area. Government responsibility for public libraries sits with the Department for Digital, Culture, Media & Sport (DCMS). Arts Council England is the development agency for libraries in England but has no budgetary responsibilities for them.

## 2. Independent Library Report for England 2014

This research was carried out by Sir William Sieghart on behalf of DCMS. Sir William said:

“Libraries are, let us not forget, a golden thread throughout our lives. The library does more than simply loan books. It underpins every community. It is not just a place for self-improvement, but the supplier of an infrastructure for life and learning, from babies to old age, offering support, help, education, and encouraging a love of reading. Whether you wish to apply for a job, or seek housing benefit, or understand your pension rights or the health solutions available to you, or learn to read, the library can assist.”

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/388989/Independent\\_Library\\_Report-18\\_December.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/388989/Independent_Library_Report-18_December.pdf)

## 3. National Priorities

Libraries Connected (formerly The Society of Chief Librarians) has redefined the modern British public library service through four Universal Library Offers which demonstrate the power of libraries to enrich the lives of individuals and their communities. These offers are: Books and Reading; Culture and Creativity; Digital & Information; and Health and Wellbeing.

The offers are underpinned by the Children’s Promise and Six Steps. The goal of The Children’s Promise is that every child and young person in libraries is inspired to read for pleasure, has access to a diverse range of materials, can engage in a variety of digital activities, and can take part in activities that improve their wellbeing. Six Steps is the commitment to around two million blind and partially sighted people in the UK who, like everyone else, need library and information services to support their daily lives.

## 4. Wider Social Outcomes

Our libraries actively work to address wider social outcomes including:

1. social inclusion, reducing loneliness and building communities
2. improving people’s health and wellbeing
3. improving social mobility, literacy/digital literacy and equal opportunities for all
4. promoting equality and diversity



We do this by providing individuals and communities with access to world-class libraries that are:

- well-stocked
- well-equipped
- fit for the future
- appropriately staffed.

Public libraries have always been 'street corner universities' supporting formal and informal lifelong learning, and our libraries are constantly expanding the offer. In addition to books and DVDs on a wide variety of subjects, our libraries offer free WiFi; free access to the Internet and a range of Microsoft Office products to assist with job searching and job applications; self-help and English for Speakers of Other Languages (ESOL) collections; English conversation classes; CV workshops; and digital training opportunities.

## 5. Local Priorities

**The City of London Corporation's Corporate Plan (2018–2023)** sets out three aims and 12 outcomes that inform all work carried out by City of London departments.

With our emphasis on supporting personal empowerment and our libraries being active community hubs, most of the work carried out by Barbican & Community Libraries is relevant to the aim **Contribute to a flourishing society**. However, our libraries also contribute to the achievement of all three aims and many of the 12 outcomes.

Aim	Outcome	Barbican & Community Libraries' contribution
<b>Contribute to a flourishing society</b>	People are safe and feel safe	Our libraries provide a safe, neutral community space for people to browse, socialise, study, search for work or just be. Staff working with children and vulnerable adults are regularly Disclosure and Barring Service (DBS) checked.
	People enjoy good health and wellbeing	Our libraries offer a wide range of items and health and wellbeing-themed collections for loan and/or download. All our libraries provide a varied programme of events and activities to support the health and wellbeing of people of all ages.
	People have equal opportunities to enrich their lives and reach their full potential	Our libraries support formal and informal lifelong learning via a wide range of items for loan, including dedicated self-help collections. Our libraries offer opportunities to learn new things and new skills via a programme of activities for all ages.



		<p>Our libraries support social mobility with a wide range of books, events and access to the Internet.</p> <p>Our libraries support digital inclusion by providing computers for public use and access to the Internet, free of charge. All libraries provide support and training for people with low/no digital skills.</p>
	Communities are cohesive and have the facilities they need	<p>Our libraries and community centres are friendly, welcoming spaces with trained staff, and are well equipped for the needs of all our communities. We carry out an in-depth consultation with our customers every three years and act on the results.</p> <p>We evaluate services and events for satisfaction and impact and make changes as required.</p> <p>We collect informal as well as formal comments and use these to shape our services.</p> <p>Wherever possible, we seek to co-produce services.</p>
<b>Shape outstanding environments</b>	Businesses are trusted and socially and environmentally responsible.	We provide a range of volunteering opportunities for City workers, including literacy support, coding tuition and supporting STEAM (Science, Technology, Engineering, Arts, Mathematics) education activities.
	We are a global hub for innovation in finance and professional services, commerce and culture.	<p>Our libraries provide access to the world's best literature, art and music via a comprehensive stock of fiction and non-fiction books, CDs, DVDs and music and video streaming services. Barbican Library hosts the library of the Society of Technical Analysts.</p> <p>Barbican Library has two major art exhibition programmes.</p> <p>Our Music Library has received four Excellence Awards from the International Association of Music Libraries, Archives and Documentation Centres</p>
	We have access to the skills and talent we need.	We employ talented, skilled and appropriately qualified staff.



<p><b>Support a thriving economy</b></p>	<p>We are digitally and physically well-connected and responsive.</p>	<p>We provide free Wi-Fi in all libraries along with public computers, free access to the Internet and a range of Microsoft products.</p> <p>Library members can access their accounts remotely, 24/7, reserve items and renew loans. They can also download eBooks, eAudiobooks, eMagazines and eComics, access a range of online digital resources and stream music and video anywhere and at any time.</p> <p>Our libraries are an active part of the wider London Libraries network and the nationwide Libraries Connected network.</p>
	<p>We inspire enterprise, excellence, creativity and collaboration.</p>	<p>In Barbican Library, we have two regular exhibition programmes. Our foyer exhibitions feature the work of amateur and semi-professional artists, individuals and collectives, highlighting a variety of art forms. Our Music Library has received four Excellence Awards from the International Association of Music Libraries, Archives and Documentation Centres, most recently for its high-profile exhibitions which are regularly featured in national media.</p> <p>Our Dragon Café in the City project is produced in collaboration with Mental Fight Club and Business Healthy.</p>





Challenges	Solutions
Financial challenges	<p>We will constantly:</p> <ul style="list-style-type: none"> <li>• investigate ways of doing things differently</li> <li>• operate as part of a consortium wherever possible</li> <li>• address alternative methods of service delivery</li> <li>• seek out alternative ways of generating income.</li> </ul>
IT: we have a complex network that sometimes does not deliver	We will continue to work closely with corporate IT and commissioned providers to find appropriate solutions.
A lack of specialist skills in marketing, business planning and performance management	We will restructure to ensure that skill gaps are filled. Wherever possible, we will think corporately and access assistance from elsewhere in the Department of Community and Children's Services and other departments in the City of London.
Shrinking staff capacity and lack of planning time, contributing to a fear of being overwhelmed	<p>We will make good use of the Corporate Plan to be clear about our priorities, and these will be reflected in our team plans and individual staff objectives.</p> <p>We will make good use of time management tools and skills.</p> <p>We will share skills across Barbican &amp; Community Libraries to avoid duplication and increase efficiency.</p> <p>We will ensure parity and equality in working practices across all three sites.</p> <p>We will continue to invest in skilful line management.</p> <p>We will continue to make good use of volunteers to support staff and provide additional services.</p>
Silo working	We will ensure better sharing of skills/work across Barbican & Community Libraries, and better adherence to our own policies and procedures.
When we try to be all things to all people, we are in danger of forgetting the core service	We will develop a better portfolio approach to services which will be reflected in our business plan and team plans.
The inaccurate stereotype of libraries and librarians is damaging and negative. Consequently, many people do not understand what a vibrant, modern library service can offer and believe our services are not for them	<p>We will concentrate on better marketing of our services, using segmentation as appropriate.</p> <p>We will ask for advice from experts within the Department and the wider City Corporation.</p> <p>Staff at all levels will take every opportunity to act as advocates for our services.</p> <p>We will provide tours/service presentations for Members and officers.</p>



Hard-to-reach communities – people not engaging	We will address hard-to-reach groups through business planning and SMART team plan objectives.
Persuading more residents to use the services	<p>We will ensure that our services are relevant to the needs of our residents.</p> <p>We will concentrate on better marketing of services to residents.</p> <p>We will seek out every opportunity to co-produce services with residents.</p> <p>We will make best use of resident groups wherever possible.</p>
Constantly changing customer needs and expectations	<p>We will continue to work to stay relevant and responsive to customer needs.</p> <p>We will make good use of professional skills and survey/evaluation data to address changing needs.</p> <p>We will continue to collect formal and informal comments and act on them.</p> <p>We will tell customers how we have responded to their comments/requests, making good use of all communication channels, including social media.</p>
There is a national decline in traditional library services, borne out by a fall in adult loans. We need to work to reverse these trends.	<p>We will continue to ensure that all libraries have a varied and interesting reader development programme which is detailed in their business plans.</p> <p>We will continue to invest in reader development staff training.</p> <p>We will continue to work with other UK public libraries, regionally and nationally, to promote reading for pleasure.</p>



## Further Reading and Relevant Research

There are three notable pieces of research which have informed the current direction for British Public Libraries:

### **1. *Envisioning the Library of the Future***

This research was commissioned by the Arts Council and conducted by Ipsos MORI and Shared Intelligence in 2012–2013. The seven key findings can be summarised as follows:

1. There is still a stated need for public libraries.
2. The core purpose of libraries is to enable people to access, explore and enjoy reading and knowledge.
3. The services we provide must be relevant to the communities we serve.
4. Success depends on community engagement, enablement and co-production.
5. Libraries have to secure other funding streams.
6. There are leadership challenges and general staff upskilling is needed.
7. Communication and knowledge sharing needs to improve.

Link to full report: [https://www.artscouncil.org.uk/sites/default/files/download-file/Envisioning\\_the\\_library\\_of\\_the\\_future\\_phases\\_1\\_and\\_2\\_full\\_report.pdf](https://www.artscouncil.org.uk/sites/default/files/download-file/Envisioning_the_library_of_the_future_phases_1_and_2_full_report.pdf)

### **2. *Independent Library Report for England***

This research was carried out by Sir William Sieghart on behalf of the Department for Digital, Culture, Media & Sport (DCMS) in 2014. The report supports the findings of the *Envisioning the Library of the Future* report and makes three recommendations:

1. The provision of a national digital resource for libraries, to be delivered in partnership with local authorities
2. The setting up of a task and finish force, led by local government, in partnership with other bodies involved in the library sector, to provide a strategic framework for England.
3. The task force, to work with local authorities, to help them improve, revitalise and if necessary, change their local library service, while encouraging, appropriate to each library, increased community involvement.

Sir William said:

“Libraries are, let us not forget, a golden thread throughout our lives. The library does more than simply loan books. It underpins every community. It is not just a place for self-improvement, but the supplier of an infrastructure for life and learning, from babies to old age, offering support, help, education, and encouraging a love of reading. Whether you wish to apply for a job, or seek housing benefit, or understand your pension rights or the health solutions available to you, or learn to read, the library can assist.”

Link to full report:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/388989/Independent\\_Library\\_Report-18\\_December.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/388989/Independent_Library_Report-18_December.pdf)



### **3. Libraries Deliver: Ambition for Public Libraries in England 2016 to 2021**

This report was written by the Libraries Taskforce, a group established within DCMS as a direct outcome of the *Independent Library Report for England*.

It outlined a vision for public libraries as vital community hubs – bringing people together and giving them access to the services and support they need to help them live better lives. The ambition described is for everyone to:

- choose to use libraries, because they see clear benefits and positive outcomes from doing so
- understand what library services offer, and how they can make the most of what's available to them
- be introduced to new ideas and opportunities, then given confidence and quick and easy access to tools, skills and information they need to improve their quality of life
- receive trusted guidance through the evolving information landscape, and build the skills needed to thrive in a changing world.

It also listed seven outcomes that are critical to the individuals and communities in their areas, which library services make strong contributions to. These are:

1. cultural and creative enrichment
2. increased reading and literacy
3. improved digital access and literacy
4. helping everyone achieve their full potential
5. healthier and happier lives
6. greater prosperity
7. stronger, more resilient communities.

Link to full report: <https://www.gov.uk/government/publications/libraries-deliver-ambition-for-public-libraries-in-england-2016-to-2021>



<b>Committees:</b>  Culture Heritage and Libraries – for decision  Community and Children’s Service Committee - for information  Digital Sub – for information	<b>Dates:</b>  22 September 2021 24 September 2021 5 November 2021
<b>Subject:</b> Library Management System <b>Unique Project Identifier:</b> <i>PV ID confirmed post CPB via PMO.</i>	<b>Gateway 2:</b> <b>Project Proposal</b> Regular
<b>Report of:</b> Director of Community & Children's Services <b>Report Author:</b> Sarah Greenwood	<b>For Decision</b>
<h1 style="text-align: center;">PUBLIC</h1>	

**Explanatory Note for Members:** The Corporate Projects Board discussed this report on 1 September and agreed that the project may or may not require capital funding dependent upon the outcome of the procurement process. The Board agreed that the project should proceed under delegation until such a time that it was determined whether the project would reach the thresholds of the gateway process. Proceeding under delegation means that all usual Gateway reports are submitted to the Director who may then choose to share the reports with Committee for information.

## Recommendations

<b>1. Next steps and requested decisions</b>	<p><b>Project Description:</b> IT system designed to manage the records of the Barbican and Community libraries including stock details, availability, fines, payments and membership details.</p> <p><b>Next Gateway:</b> Gateway 3/4 - Options Appraisal (Regular)</p> <p><b>Next Steps:</b> Development of Requirements Document/specification and soft market testing, with development of procurement options using existing local risk funding resources.</p> <p><b>Funding Source:</b> potential capital funding from central City Fund reserves (dependent upon procurement process) and revenue funding from Department of Community and Children’s Services local risk budget. A bid for allocation of potential capital funding of £20k will be made through the next capital bids round.</p>
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	<p>Existing local risk funding will be used to progress the project to the next Gateway.</p> <p><b>Requested Decisions:</b></p> <ol style="list-style-type: none"><li>1. Note the total estimated cost of the project of up to £325,000 (including one off capital of £50k (of which £30k will be met through local risk) and ongoing revenue of £275k pa)</li><li>2. Approval for a staff cost budget of £1,500 to proceed to the next Gateway to be funded from within existing local risk resources.</li></ol>												
<p><b>2. Resource requirements to reach next Gateway</b></p>	<table><tr><th>Item</th><th>Reason</th><th>Funds/ Source of Funding</th><th>Cost (£)</th></tr><tr><td>Staff costs</td><td>Development of required specification, Market engagement and options appraisal</td><td>Existing Local risk funding</td><td>£1,500</td></tr><tr><td><b>Total</b></td><td></td><td></td><td></td></tr></table> <p><b>Costed Risk Provision requested for this Gateway: None</b> (as detailed in the Risk Register – Appendix 2)</p>	Item	Reason	Funds/ Source of Funding	Cost (£)	Staff costs	Development of required specification, Market engagement and options appraisal	Existing Local risk funding	£1,500	<b>Total</b>			
Item	Reason	Funds/ Source of Funding	Cost (£)										
Staff costs	Development of required specification, Market engagement and options appraisal	Existing Local risk funding	£1,500										
<b>Total</b>													
<p><b>3. Governance arrangements</b></p>	<ol style="list-style-type: none"><li>1. Culture Heritage and Libraries Committee is responsible for oversight of library services within the City.</li><li>2. The project board consists of Carol Boswarthack, the Head of Barbican and Community Libraries (the Senior Responsible Officer), Jonathan Gibbs, the Operations and IT Librarian and with additional representation from IT, Comptroller and City Solicitor and City Procurement. The project will be managed by the Commissioning Manager Sarah Greenwood.</li><li>3. The Digital Services Sub (Finance) committee will also receive Gateway reports for information and the City Procurement IT Category Board will sign off the Options report prior to Gateway 5</li></ol>												

### **Project Summary**

<p><b>4. Context</b></p>	<ol style="list-style-type: none"> <li>1. The City of London Corporation (CoLC) has a statutory duty to provide a “comprehensive and efficient” public library</li> </ol>
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	<p>service including the free loan of books to those who live, work or study within the area. The legislation governing the City's library provision is <a href="#">The Public Libraries and Museums Act 1964</a> (amended by the Local Government Act 1972) .</p> <p>2. Barbican and Community Libraries use a library management system to manage its library activities including a library catalogue, stock availability, overdue items, fines and payments and membership details. The library management system is the backbone of the library service and enables service users to have joined up services. The system integrates with the e-books contract, the public network and the self-service kiosks. The catalogue function is also used by Guildhall Library and London Metropolitan Archives and it also provides a gateway to online resources for users of the Small Business Research and Enterprise Centre.</p> <p>3. The seven year contract for the current solution (provided by Sirsi Dynix) ends in July 2022 and cannot be extended. A compliant procurement exercise must now be completed for an IT solution post July 2022.</p>
<b>5. Brief description of project</b>	<p>1. The project is the commissioning and procurement of a new contract to provide an IT system designed to manage the records and functions of the Barbican and Community Libraries Service including library catalogue, stock availability, fines and payments and membership details. The Library Management System will integrate with the e-books contract, the public network and the self-service kiosks.</p> <p>2. The project is also inclusive of scoping requirements, developing and designing an appropriate specification and mobilisation and migration of data (if required) to the new system.</p>
<b>6. Consequences if project not approved</b>	<p>All public library authorities use an automated Library Management System as this is the most efficient way of running a modern public library service. Without a library management system, the CoLC would be unable to deliver its statutory functions. To meet basic requirements of maintaining a catalogue the CoLC would need to develop another database solution and employ additional staff to manage it. All the automated functions including stock management, loans, overdue notices, reservations and fine and payments would also require alternative solutions.</p>
<b>7. SMART project objectives</b>	<p>1. The system enables the CoLC to deliver its library services.</p> <p>2. The system has proven capability and capacity to manage the current (and future potential) requirements of library users including flexibility to respond to changing Government, Covid and technological requirements</p>



	<p>3. The system enables a safe and professional experience for library staff and users with co-ordination of all records in relation to stock</p> <p>4. The solution can be configured to meet local and national reporting requirements and City data intelligence</p> <p>5. The system supports flexible working on a variety of devices</p>
<b>8. Key benefits</b>	<p>1. The system meets agreed modern library requirements and identified good practice</p> <p>2. Safe and professional experience for service users and staff with co-ordination of all records in relation to stock</p>
<b>1. Project category</b>	5. Other priority developments
<b>2. Project priority</b>	A. Essential
<b>3. Notable exclusions</b>	N/A

### Options Appraisal

<b>4. Overview of options</b>	<p>1. Sharing a system with one or more other local authorities (e.g. the London Libraries Consortium)</p> <p>2. Open tender (including through a framework)</p> <p>3. Direct award through a framework</p> <p>4. Not utilise a software solution - whilst this remains an option, it would not meet any of the regulatory requirements and therefore has essentially been discounted as a credible option</p> <p>All options will be considered during the City's procurement process and development of the options appraisal form PT3</p>
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### Project Planning

<b>5. Delivery period and key dates</b>	<p><b>Overall project:</b> A timeframe of 10 months to allow for commissioning and procurement activity, and potential migration of data to a new system should the current supplier not be successful in the tender process.</p> <p><b>Key dates:</b></p> <p>Capital Bid Round submission for capital funding: Summer 2021</p> <p>Gateway 3/4: November 2021</p> <p>Invitation to tender: December 2021</p> <p>Selection of contractor: March 2022</p> <p>Data Migration: March 2022 – July 2022 (period may not be required if existing supplier is winning bidder)</p> <p>New system go live : July 2022</p>
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	<p>Gateway 6: October 2022</p> <p><b>Other works dates to coordinate:</b> Potential other IT system changes (to be confirmed with IT colleagues).</p>
<b>6. Risk implications</b>	<p><b>Overall project risk:</b> Medium</p> <p>Key risks include</p> <p>Contractual: the City's contract is too small and there are no bids for the contract</p> <p>Technological: the system is not sufficiently flexible to meet future statutory or City of London requirements, the system is not mobilised adequately in time for the contract to be required</p> <p>Financial: insufficient capital funding to enable the contract to proceed (capital funding is only required if the current provider is not the provider of the new contract).</p> <p>Further information is available within the Risk Register (Appendix 2)</p>
<b>7. Stakeholders and consultees</b>	<ol style="list-style-type: none"> <li>1. Barbican and Community Libraries staff working within DCCS</li> <li>2. Library users</li> <li>3. Third party providers including eBooks and Public Network providers</li> <li>4. IT - Business Partner and Infrastructure Architect (engaged via IT PMO)</li> <li>5. City Procurement – Procurement Operations Manager and IT Category Board</li> <li>6. Comptroller and City Solicitor (via City Procurement)</li> <li>7. Chamberlains</li> </ol>

### **Resource Implications**

<b>8. Total estimated cost</b>	<p><b>Likely cost range (excluding risk):</b></p> <p>Lower range estimate: £0 one-off/capital + £25k of annual revenue costs of the current system but no capital/data migration costs if current provider is the successful bidder.</p> <p>Upper Range estimate: £50k one-off/capital (consisting of a capital bid of £20k and £30k met through local risk) and ongoing revenue of £55k pa which would be contained within existing local risk resources. Estimated upper range costs are based on the framework estimated contract costs and assume migration to a new system is required. Should the current provider be the winning bidder for the tender, no one-off/capital costs would be incurred and no capital funding would be required. To this end, a speculative capital bid will be made in 2021 (as part of the 2022/23 annual capital bid round) for potential one-off/capital funding of £20k, the need for which is</p>
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	<p>entirely dependent upon the outcome of the procurement process.</p> <p>As a system is undoubtedly required, work completed at this stage is not abortive and funded entirely through existing local risk budgets.</p> <table><tr><td></td><td></td></tr><tr><td>One-Off/Capital Costs:</td><td>£50,000</td></tr><tr><td>System Capital costs (initial training, data migration</td><td>£20,000</td></tr><tr><td>Internal Project Management and migration etc</td><td>£30,000</td></tr><tr><td>Revenue Costs:</td><td>£275,000</td></tr><tr><td>System revenue costs (5 years)</td><td>£275,000</td></tr><tr><td>Total (5 year whole life cost)</td><td>£325,000</td></tr></table>				One-Off/Capital Costs:	£50,000	System Capital costs (initial training, data migration	£20,000	Internal Project Management and migration etc	£30,000	Revenue Costs:	£275,000	System revenue costs (5 years)	£275,000	Total (5 year whole life cost)	£325,000		
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9. Funding strategy	Choose 1: Partial funding confirmed	Choose 1: Internal - Funded wholly by City's own resource																
	<table><tr><th>Funds/Sources of Funding</th><th>Cost (£)</th></tr><tr><td>Central funding (if required) from City Fund Reserves to be requested via the 2022/23 annual capital bid process</td><td>£20,000</td></tr><tr><td></td><td></td></tr><tr><td>Staff costs from existing local risk resources</td><td>£30,000</td></tr><tr><td>Total One-off/Capital</td><td>£50,000</td></tr><tr><td>Local risk revenue funding (ongoing revenue costs)</td><td>£275,000</td></tr><tr><td></td><td></td></tr><tr><td>Total (5 year whole life) cost</td><td>£325,000</td></tr></table>		Funds/Sources of Funding	Cost (£)	Central funding (if required) from City Fund Reserves to be requested via the 2022/23 annual capital bid process	£20,000			Staff costs from existing local risk resources	£30,000	Total One-off/Capital	£50,000	Local risk revenue funding (ongoing revenue costs)	£275,000			Total (5 year whole life) cost	£325,000
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<p>Should the existing system service provider be the preferred supplier, there would be no one-off/capital costs. However, if the procurement process identifies an alternative provider then central funding from City Fund reserves would be required for the cost of transitioning to a new system. Therefore, a capital bid will be submitted as part of the 2022/23 annual capital bid process to cover this eventuality, which would materialise in 2022.</p> <p>The pre-gateway 5 costs will all be met from within existing local risk resources</p>																		
10. Investment appraisal	<p>An options appraisal will be considered by City Procurement in line with the City Procurement Code. In order to ensure value</p>																	



	for money the steering group will consider a longer contract period.
<b>11. Procurement strategy/route to market</b>	The project is included within the City Procurement's sourcing plan for 2021/22 and a PT 2 (procurement request form) has been submitted. Potential routes to market include the use of a call off framework, open tender or a joint procurement within another Local Authority and more details will be included at Gateway 3/4.
<b>12. Legal implications</b>	<p>A Data Protection Impact Assessment and Data Processing Agreements will be completed as part of the procurement process to ensure the solution is compliant with GDPR</p> <p>The specification will include the relevant statutory requirements for social work practice, data submissions to Government bodies and data security.</p> <p>The Comptroller and City Solicitor will be included within the steering group to draw up legally compliant terms and conditions and the procurement process will be led by City Procurement to be compliant with all Public Contracting Regulations as outlined in the City's Procurement Code</p>
<b>13. Corporate property implications</b>	None
<b>14. Traffic implications</b>	None
<b>15. Sustainability and energy implications</b>	None
<b>16. IS implications</b>	<p>The specification for the service will include all IS requirements including hosting and security. An Opportunity Outline form for the IS Project Management Office has been completed and submitted to identify IS resources for the procurement.</p> <p>An IS representative is on the Project Board and has supported the development of the Gateway documents.</p>
<b>17. Equality Impact Assessment</b>	An equality impact assessment will be undertaken
<b>18. Data Protection Impact Assessment</b>	The risk to personal data is high and a data protection impact assessment will be undertaken

## Appendices



<b>Appendix 1</b>	Project Briefing
<b>Appendix 2</b>	Risk Register

### **Contact**

<b>Report Author</b>	Sarah Greenwood
<b>Email Address</b>	Sarah.greenwood@cityoflondon.gov.uk
<b>Telephone Number</b>	020 7332 3594



# Project Briefing

Project identifier			
<b>[1a] Unique Project Identifier</b>	<A unique project number will travel with the project, and will incorporate a Department lead, within. Will be generated via Project Vision by CPO after CPB>	<b>[1b] Departmental Reference Number</b>	N/A
<b>[2] Core Project Name</b>	Library Management System		
<b>[3] Programme Affiliation</b> (if applicable)	Not applicable		

Ownership	
<b>[4] Chief Officer has signed off on this document</b>	Andrew Carter (Director DCCS)
<b>[5] Senior Responsible Officer</b>	Carol Boswarthack (Assistant Director)
<b>[6] Project Manager</b>	Sarah Greenwood, Commissioning Manager

Description and purpose					
<b>[7] Project Description</b>					
IT system designed to manage the records of the Barbican and Community libraries including stock details, availability, fines and payments and membership details. The Library Management System will integrate with the e-books contract, the public network and the self service kiosks.					
<b>[8] Definition of Need: What is the problem we are trying to solve or opportunity we are trying to realise (i.e. the reasons why we should make a change)?</b>					
The contract for the current library management system is due to expire in July 2022					
<b>[9] What is the link to the City of London Corporate plan outcomes?</b>					
[3] People have equal opportunities to enrich their lives and those of others and reach their full potential. 4. Communities are cohesive and have the facilities they need					
<b>[10] What is the link to the departmental business plan objectives?</b>					
<b>Potential</b> - People of all ages are prepared to flourish in a rapidly changing world through exceptional education, cultural and creative learning and skills which link to the world of work <b>Independence, Involvement and Choice</b> - People of all ages can live independently, play a role in their communities and exercise choice over their services					
<b>[11] Note all which apply:</b>					
<b>Officer:</b> Project developed from Officer initiation	Y	<b>Member:</b> Project developed from Member initiation	N	<b>Corporate:</b> Project developed as a large scale Corporate initiative	N
<b>Mandatory:</b> Compliance with legislation, policy and audit		<b>Sustainability:</b> Essential for business continuity	Y	<b>Improvement:</b> New opportunity/ idea that leads to improvement	N



<b>Project Benchmarking:</b>
<b>[12] What are the top 3 measures of success which will indicate that the project has achieved its aims?</b>
1) The system meets agreed modern library requirements and identified good practice
2) Safe and professional experience for service users and staff with co-ordination of all records in relation to stock
<b>[13] Will this project have any measurable legacy benefits/outcome that we will need to track after the end of the 'delivery' phase? If so, what are they and how will you track them? (E.g. cost savings, quality etc.)</b>
<b>[14] What is the expected delivery cost of this project (range values)[£] £120k including initial capital funding</b>
<b>[15] Total anticipated on-going revenue commitment post-delivery (lifecycle costs)[£]:</b>
£25k pa included within 14 above
<b>[16] What are the expected sources of funding for this project?</b>
Revenue: confirmed within current local risk budget Potential capital costs of up to £ 40k to be sought during annual capital bid round
<b>[17] What is the expected delivery timeframe for this project (range values)? Are there any deadlines which must be met (e.g. statutory obligations)?</b>
- Lower Range estimate: contract start – March 2022 – to allow for a 4 month contract negotiation/data migration and mobilisation period - existing contract expires in July 2022

<b>Project Impact:</b>
<b>[18] Will this project generate public or media impact and response which the City of London will need to manage? Will this be a high-profile activity with public and media momentum?</b>
Not implementing a replacement social care case management system would mean the City could not discharge its statutory functions – this could lead to reputational risks
<b>[19] Who has been actively consulted to develop this project to this stage?</b>
Chamberlains: Finance
Officer Name: Mark Jarvis
Chamberlains: Procurement
Officer Name: Loredana Sandhu/Kayleigh Rippe (to be confirmed via PT2 process)
IT
Officer Name: Matt Cox (Business Partner). Other IT resources to be allocated after Opportunity Outline Submitted
HR
Officer Name: N/A
Communications
Officer Name: N/A
Corporate Property
Officer Name: N/A
External
N/A
<b>[20] Is this project being delivered internally on behalf of another department?</b>
<b>No</b>
Client
Department: N/A
Supplier
Department: N/A
Supplier
Department: N/A
Project Design Manager
Department: N/A
Design/Delivery handover to Supplier
Gateway stage: N/A



**City of London: Projects Procedure Corporate Risks Register**

 Project name: *Library Management System*

 Unique project identifier: *TBA*

 Total est cost (exc risk) *£0*

PM's overall risk rating

Medium

Avg risk pre-mitigation

8.0

Avg risk post-mitigation

5.2

Red risks (open)

0

Amber risks (open)

4

Green risks (open)

1

Corporate Risk Matrix score table

	Minor impact	Serious impact	Major impact	Extreme impact
Likely	4	8	16	32
Possible	3	6	12	24
Unlikely	2	4	8	16
Rare	1	2	4	8

Costed risks identified (All)

£0.00

0%

Costed risk as % of total estimated cost of project

Costed risk pre-mitigation (open)

£0.00

0%

" "

Costed risk post-mitigation (open)

£0.00

0%

" "

Costed Risk Provision requested

£0.00

0%

CRP as % of total estimated cost of project

(1) Compliance/Regulatory

(2) Financial

(3) Reputation

(4) Contractual/Partnership

(5) H&amp;S/Wellbeing

(6) Safeguarding

(7) Innovation

(8) Technology

(9) Environmental

(10) Physical

Number of Open Risks	Avg Score	Costed Impact	Red	Amber	Green
0	0.0	£0.00	0	0	0
1	8.0	£0.00	0	1	0
0	0.0	£0.00	0	0	0
1	8.0	£0.00	0	1	0
0	0.0	£0.00	0	0	0
1	8.0	£0.00	0	1	0
0	0.0	£0.00	0	0	0
2	8.0	£0.00	0	1	1
0	0.0	£0.00	0	0	0
0	0.0	£0.00	0	0	0

Issues (open)

0

All Issues

0

Open Issues

0

0

0

0

All Issues

0

0

0

0

 Cost to resolve all issues  
(on completion)

£0.00

Total CRP used to date

£0.00



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<b>Committees:</b>	<b>Dated:</b>
Homelessness and Rough Sleeping Sub-Committee	28/06/2021
Department of Community and Children's Services Committee	24/09/2021
<b>Subject:</b>	<b>Public</b>
Homeless Link Immigration Pledge Appeal	
<b>Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly?</b>	1,2,3,4,10
<b>Does this proposal require extra revenue and/or capital spending?</b>	<b>N</b>
<b>If so, how much?</b>	<b>N/A</b>
<b>What is the source of Funding?</b>	<b>N/A</b>
<b>Has this Funding Source been agreed with the Chamberlain's Department?</b>	<b>N/A</b>
<b>Report of:</b>	<b>For Information</b>
Andrew Carter, Director of Community and Children's Services	
<b>Report author:</b>	
Will Norman, Head of Homelessness Prevention and Rough Sleeping	

## Summary

This report provides Members with an overview of the new Homeless Link Pledge Campaign. The campaign is a response to changes made to the Immigration Act in October 2020 and the subsequent code of guidance published by the Home Office. Homeless Link is asking the voluntary sector, local authorities, and public sector bodies to sign up to a 'pledge campaign' in opposition to these changes and the operational implications.

## Recommendation

Members are asked to comment and recommend further steps.

## Main Report

### Background

1. Changes to immigration rules pursuant to section 3(2) of the Immigration Act 1971 were published by the Government on 22 October 2020. Of the changes included in this document, the most pertinent are the changes related to rough sleeping as grounds for refusal.
2. New guidance titled '*Grounds for refusal – rough sleeping in the UK*' was published by the Home Office on 15 April 2021.
3. The guidance explains when an application for permission to stay may be refused, or any permission held may be cancelled on the grounds of rough sleeping in the UK. The guidance does not apply to:
  - those granted or eligible for pre-settled or settled status under the EU Settlement Scheme



- those granted indefinite leave
  - those granted leave under a protection route (for example, as a refugee or on the grounds of human rights or for humanitarian protection).
4. The guidance explains that the new immigration rules set out a discretionary basis for the refusal of permission to stay, where the application was made on or after 1 December 2020, and for any permission held to be cancelled on the grounds of rough sleeping in the UK.
  5. The rule was amended on 6 April 2021 to clarify that permission may only be refused or cancelled where a person has repeatedly refused suitable offers of support and engaged in persistent anti-social behaviour. This has become commonly referred to as the 'rough sleeping rule'.
  6. Furthermore, the guidance states *that "The bar is set at 'unreasonably refusing to co-operate' so that it does not penalise those who have difficulty co-operating, for example because of poor mental health."* In reality, therefore, these provisions will apply to a very small proportion of the homeless population.
  7. The Rough Sleeping Support Service (RSSS) was launched in 2018 as part of the Government's Rough Sleeping Strategy. The RSSS sits within the Immigration Enforcement Service. In the code of guidance, the Home Office explains that the RSSS has been '*... refreshed to provide clarity to organisations and individual rough sleepers as to how their data will be used*'. The RSSS can also support people to resolve their immigration status if they are sleeping rough.
  8. The Home Office would like local authorities and police forces to be proactive in referring to the RSSS where individuals qualify under the rough sleeping rule criteria. This means someone would need to be:
    - a. rough sleeping
    - b. rejecting offers of support and assistance
    - c. perpetrating anti-social behaviour or crime.
  9. Evidence would be required to determine all three criteria have been met. Where a police force is the source of a referral, the Home Office will consult with the applicable local authority to confirm the support and rough sleeping elements. It should be noted that, in Greater London, the Combined Homelessness and Information Network (CHAIN) is the source of rough sleeping records and rough sleeping status validation. Presently the Greater London Authority (GLA), who commission St Mungo's to deliver CHAIN, have not given permission for the CHAIN team to share data which will knowingly be used for this purpose.
  10. It can be reasonably expected that individuals who come to the attention of the Home Office through this referral route might have any existing permission cancelled, should this fall within the limitations of the guidance.
  11. The code of guidance gives due regard to considering cases on their individual merits and taking reasonable and proportionate action. A link to the guidance can be found here:



[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/978197/rough-sleeping-v1.0ext.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/978197/rough-sleeping-v1.0ext.pdf)

12. Homeless Link are a member organisation and umbrella body which represent the homelessness and rough sleeping sectors. They develop best practice, provide training, advise on policy/law changes and lobby Government.
13. On 21 April 2021, Homeless Link published a response to the Immigration Act changes. This was followed by a pledge appeal asking charities and local authorities to sign a statement in opposition to the Immigration Act changes and to pledge to not use the referral mechanism to RSSS. A link to the pledge can be found here: <https://www.homeless.org.uk/stand-against-rough-sleeping-immigration-rules>

### **Current Position**

14. This is a new change to legislation and a new code of guidance. Presently, all rough sleepers willing to engage with our commissioned services are assessed and a credible and safe offer which constitutes a route away from rough sleeping is developed with them.
15. Currently, service offers may include a safe return to a country of origin. To complete this process, we require the consent of the individual and a willingness to engage with the offer to its conclusion.
16. We do not require our commissioned providers to refer to the RSSS. City of London offers do not use or refer to the RSSS.
17. The Homeless Link pledge has been widely adopted by the voluntary sector. Presently, three local authorities (Southwark, Islington, and Lewisham) have signed, as well as the GLA.
18. Although we enjoy close partnership arrangements with colleagues in City of London Police and the Community Safety Team, crime and anti-social behaviour are handled separately to offers of accommodation and support – that is, one is not dependent on the other. Where persistent anti-social behaviour is perpetrated by a rough sleeper, we may support enforcement actions in parallel to offering assistance and accommodation. Decisions about how and when to take enforcement actions forward are always taken through multi-agency consensus.
19. The number of individuals affected is difficult to quantify, however, allowing for the fact that some cases carry over from the previous year, we anticipate three to five cases meeting all three criteria in any given year.

### **Proposals**

20. This report is for discussion at the Homelessness and Rough Sleeping Sub-committee. Members are asked to review and recommend next steps.



21. Should the recommendation be to sign the Pledge Appeal, a report would need to be submitted to DCCS Committee and thereafter Policy and Resource for decision.

## Options

22. The City of London Corporation may wish to sign up to the Homeless Link pledge campaign. This would state our intention not to use the RSSS referral mechanism and confirm the City of London's position in opposition to the changes to the Immigration Act.
23. The City of London Corporation may elect to not sign the campaign. This would not indicate a policy position either way. Options to use or not use the RSSS referral mechanism remain a discretionary matter.

## Corporate & Strategic Implications

24. *Strategic implications* – This proposal relates to national and central Government objectives to halve rough sleeping by 2022 and end it entirely by 2027. Consideration should also be given to Corporate Plan objectives relating to contributing to a flourishing society and shaping outstanding environments.
25. *Financial implications* – this is difficult to quantify and depends largely on the number of individuals who might qualify for referral in future months and years, and who are, in turn, not referred if the pledge campaign is signed. Rough sleeping is known to harm physical and mental health; therefore, it might reasonably be assumed that a small number of individuals will live for longer periods of time on the street. Should their care and support needs cause concern, we may need to act with urgency. This group will have no recourse to public funds and costs will be met by local risk.
26. *Resource implications* – there are none directly linked with this report.
27. *Legal implications* – instructions were given to external counsel who have provided written advice. Some key points are as follows:
- *any decision to sign up to the Pledge (or not) is a political decision and is likely to have considerably more political significance than legal consequences*
  - *the primary purpose of the Pledge is not to create a legally enforceable 'contract' but to send out a message to re-assure potential clients that their status will not be jeopardised*
  - *as a matter of law, the Pledge would not.... amount to a promise that would be legally enforceable in any meaningful way*
  - *whereas there is no legal impediment to a local authority deciding not to refer in any individual case, adopting the Pledge would in effect create a policy that, irrespective of the facts of any particular case, no referral will be made*
  - *there is always a danger in adopting a policy that places a blanket prohibition on what would otherwise be a discretion that it may amount to an unlawful 'fettering' of that discretion. Where a public body has a discretion, a policy as to how that discretion is*



*to be exercised must not be followed so slavishly as to preclude the possibility of departing from the policy in any particular case*

- it is conceivable that if there were a case where it was considered by the authority that a referral was necessary or preferable, it may be open to the person affected to try to challenge that decision on the basis that the policy was not followed*
- a policy not to refer in any case must be implemented lawfully, using the proper procedure, and taking into account the relevant considerations*
- the pledge itself does not create a legally enforceable promise, however, the adoption of a policy not to refer in any case is something that could give rise to a potential public law challenge if it were not followed or, conversely, a challenge on the basis that in following the policy too slavishly, the local authority had fettered its discretion.*
- In reality the chances of a successful challenge may not be particularly high, but, nevertheless, these implications are worth bearing in mind.*

28. *Risk implications* – there is a degree of reputational risk to each option. The measures outlined in the guidance and the referral mechanism to RSSS are linked to the Government's Rough Sleeping Strategy. This states an intention to halve rough sleeping by 2022 and end it by 2027. These options are at the disposal of local authorities in support of this aim.

29. Three local authorities and the GLA have already signed. It is possible there may be more, but they have elected not to advertise their logo on the Homeless Link website (an option).

30. *Equalities implications* – an equalities impact assessment has not been undertaken at this time. This report is primarily concerned with providing Members with the contextual information required relating to the decision as to whether or not to sign the Homeless Link Pledge Campaign. In the event our practice changes and we intend to use the RSSS service, it may be necessary to carry out such an assessment at that time.

31. *Climate implications* – there are none directly linked with this report.

32. *Security implications* – there are none directly linked with this report.

## **Conclusion**

33. The Homeless Link Pledge Campaign asks local authorities to make a commitment to non-co-operation with the Home Office Immigration Service and RSSS. This commitment has already been made by a small number of councils.

34. The implication for the City of London in signing up to the campaign affects a small number of rough sleepers with no recourse to public funds, who are perpetrating anti-social behaviour and not engaging with outreach services.

35. Assistance for this group would be limited to emergency assistance should care and support needs escalate to the point where action is deemed necessary. The cost of assisting would fall to the City of London.



36. Legal advice points out that the decision to sign or not sign the Pledge Campaign is a political rather than legal one. Any legal implications are linked to the consequences of signing such a pledge due to the required change in operating practice.
37. Legal advice points out that there is no obligation to use the referral mechanism, therefore a policy of non-cooperation could be considered a fettering of this discretion.
38. Should the Pledge Campaign be signed, and a subsequent decision be made that a referral to RSSS is required, a challenge that policy has not been followed could result.

## **Appendices**

- Appendix 1: Homeless Link Pledge Campaign: Legal opinion
- Appendix 2: Standard Motion on Homelessness and Immigration Rules

## **Will Norman**

Head of Homelessness Prevention and Rough Sleeping

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T: 07701 372884



## RE: HOMELESS LINK PLEDGE CAMPAIGN

### OPINION

1. I am asked to advise the City of London with regard to the legal implications of signing up to a 'Pledge' proposed by Homeless Link to the effect that it will not co-operate in referring homeless persons to the Home Office.
2. I must say at the outset that any decision to sign up to the Pledge (or not) is a political decision and is likely to have considerably more political significance than legal consequences. This Opinion is concerned solely with the legal implications.

### BACKGROUND

3. On 1 December 2020, the Immigration Rules were amended to provide a discretionary basis for the refusal of permission to stay in the UK (where the application was made after 1/12/2020) and for any permission to be cancelled on the grounds of rough sleeping in the UK.
4. The provisions are set out in paragraphs 9.21.1 and 9.21.2 of the Rules:

#### *Rough sleeping in the UK*

*9.21.1. Permission to stay may be refused where the decision maker is satisfied that a person has been rough sleeping in the UK and has repeatedly refused offers of suitable support and has engaged in persistent anti-social behaviour.*

*9.21.2. Where the decision maker is satisfied that a person has been rough sleeping in the UK and has repeatedly refused offers of suitable support, and has engaged in persistent anti-social behaviour, any permission held by the person may be cancelled.*



5. On 6/4/2021, the Rules were amended to clarify that “*permission may only be refused or cancelled where a person has repeatedly refused suitable offers of support and engaged in persistent anti-social behaviour*”.
6. Consequential to these changes, the Home Office has provided guidance (15/4/2021) to its immigration officers on how these provisions should be implemented.

#### WHO WILL BE EFFECTED BY THE CHANGES – Status

7. The guidance states that it does not apply to:
  - those granted or eligible for pre-settled or settled status under the EU Settlement Scheme (EUSS)
  - those granted indefinite leave
  - those granted leave under a protection route (for example as a refugee or on the grounds of human rights or for humanitarian protection)
8. In particular, it is stated that “*any EU, EEA or Swiss citizen or their family member who has EUSS status or is eligible to apply for status must not have that leave cancelled on the basis of rough sleeping.*”

#### WHO WILL BE EFFECTED BY THE CHANGES – Rough Sleepers

9. The guidance states that “*The introduction of rough sleeping as a ground for the refusal or cancellation of permission is not intended to criminalise rough sleeping or to penalise those who inadvertently find themselves temporarily without a roof over their head*  
...



*The rule will be applied to those who refuse to engage with the range of available support mechanisms and who engage in persistent anti-social behaviour.”*

10. The guidance recognises that *“Not every rough sleeper will be eligible for statutory support and many migrant rough sleepers will have a condition attached to their leave prohibiting access to public funds. Depending on the person’s immigration status there may be limits on the help a local authority can provide where the person is ineligible for homelessness assistance.*

*...*

*You cannot refuse or cancel permission to remain in the UK under the rough sleeping rule where a person hasn’t refused support because none has been offered ... because they are not eligible for support.”*

11. Furthermore *“The bar is set at ‘unreasonably refusing to co-operate’ so that it does not penalise those who have difficulty co-operating, for example because of poor mental health.”*

12. In reality, therefore, these provisions will apply to a very small proportion of the homeless population.

## ROLE OF LOCAL AUTHORITIES

13. The Guidance states that *“Local authorities are likely to know rough sleepers in their area and where there is anti-social behaviour will refer them to the police.*

*...*

*A non-UK national who is encountered sleeping rough may be referred to Immigration Enforcement’s National Command and Control Unit by either the police, following a referral from the local authority, or directly from a local authority because of their offending or anti-social behaviour and where the person has failed to co-operate with offers of support.”*



14. It is clear from this that there is no obligation on a local authority to make a referral.

## HOMELESS LINK POSITION

15. Homeless Link, a 'national membership charity for organisations working directly with people who become homeless in England', are opposed to the new rules and are asking homelessness organisations and local authorities to sign up to a 'pledge' in the following terms:

- That in order to assist the national effort to end rough sleeping we will make no direct referrals under the rough sleeping Immigration Rules
- The council will also not require any of our commissioned partners to make referrals or pass data to the Home Office under the Immigration rules.
- The council will only share information and data with the Home Office with the explicit and informed consent of the individual.

16. Reading the material provided by Homeless Link, it seems clear that they appreciate that the effect of these provisions is considerably more limited than the headlines might imply. It seems that their primary concern is that people will not approach the relevant services for help if they think, rightly or wrongly, that they are in jeopardy of losing their status.

## THE LEGAL EFFECT OF THE PLEDGE

17. In light of the above, it seems that the primary purpose of the Pledge is not to create a legally enforceable 'contract' but to send out a message to re-assure potential clients that their status will not be jeopardised.

18. Indeed, as a matter of law, the Pledge would not in my opinion amount to a promise that would be legally enforceable in any meaningful way.



19. The key issue however is that, whereas there is no legal impediment to a local authority deciding not to refer in any individual case, adopting the Pledge would in effect create a policy that, irrespective of the facts of any particular case, no referral will be made.
20. Unlike, say, a voluntary sector organisation or charity, a local authority is an organ of government and its decision-making must be done in accordance with the principles of public law. Every decision of a local authority must be 'lawful'. This means that proper processes must be followed, the decision-maker must take into account all relevant considerations and the decision must be 'rational'.
21. Government Guidance is generally considered to be 'relevant consideration' in public law decision making. This does not mean it has to be followed but it does mean it has to be accorded due weight and any decision that goes against it must be justifiable. In this particular case, the Guidance is provided to Immigration Officials and not to Local Authorities so the weight it carries may be less significant.
22. In this case there are the opposing considerations of, on the one hand, the government's aim of reducing problems of antisocial behaviour associated with rough sleepers and, on the other, the danger that a wider group of vulnerable people will not come forward to access services that are available for them. Any decision to adopt a policy of not referring would have to balance these and any other relevant considerations.
23. Furthermore, there is always a danger in adopting a policy that places a blanket prohibition on what would otherwise be a discretion that it may amount to an unlawful 'fettering' of that discretion. Where a public body has a discretion, a policy as to how that discretion is to be exercised must not be followed so slavishly as to preclude the possibility of departing from the policy in any particular case. (R v Home Department ex p Venables [1985] AC 407)



24. Conversely, it is conceivable that if there were a case where it was considered by the authority that a referral was necessary or preferable, it may be open to the person affected to try to challenge that decision on the basis that the policy was not followed. I don't say that such a challenge would be effective, but it is conceivable.

## CONCLUSION

25. The first important point to note is that it is for the Home Office and not the local authorities to determine if, and to what extent, the new rules should be applied in any given case.

26. It is clear from the guidance that it will not apply to the majority of homeless persons.

27. The guidance provides that a non-uk rough sleeper may be referred by the local authority (among other possible referral routes). There is no requirement or obligation that a local authority must make a referral. There is, therefore, no legal impediment to the local authority deciding not to make a referral in any given case.

28. However, a policy not to refer in any case must be implemented lawfully, using the proper procedure and taking into account the relevant considerations.

29. In my opinion, the pledge itself does not create a legally enforceable promise, however, the adoption of a policy not to refer in any case is something that could give rise to a potential public law challenge if it were not followed or, conversely, a challenge on the basis that in following the policy too slavishly, the local authority had fettered its discretion.

30. In reality the chances of a successful challenge may not be particularly high, but, nevertheless, these implications are worth bearing in mind.



31. Please do not hesitate to contact me if you want to discuss further.

Sean Pettit

Five Paper

9/6/2021



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## **Standard Motion on Homelessness and Immigration Rules**

1. This council notes the Government Immigration Rules published on 22 October 2020, coming into effect on 1 December 2020 which made rough sleeping grounds for refusing or cancelling a person's leave to remain in the UK.
2. This council further notes the implementation guidance published by the Government on 20 April 2021 which clarifies how the rules will be implemented
3. This council welcomes the government's ongoing commitment to end rough sleeping by 2024.

### **This council believes**

4. In order to end rough sleeping, people experiencing homelessness must be able to confidently approach local services provided by this council and its commissioned partners.
5. That the immigration rules as proposed will dissuade many people facing homelessness from accessing those services for fear that their details will be passed to immigration authorities and that this will lead to an increase in rough sleeping

### **This council therefore pledges**

6. That in order to assist the national effort to end rough sleeping we will make no direct referrals under the rough sleeping Immigration Rules
7. The council will also not require any of our commissioned partners to make referrals or pass data to the Home Office under the Immigration rules.
8. The council will only share information and data with the Home Office with the explicit and informed consent of the individual.
9. To display this commitment prominently in public areas and on our website and to inform those organisations that we work with (commissioned and non-commissioned) who make referrals to us of this policy.
10. To join Homeless Links's #SupportDontDeport campaign and allow our logo to be identified with that campaign.



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<b>Committee:</b> Community and Children's Services Committee	<b>Dated:</b> 24 September 2021
<b>Subject:</b> DCCS Business Plan Performance: 2021-22 Quarter 1	<b>Public</b>
<b>Which outcomes in the City Corporation's Corporate Plan does this proposal aim to impact directly?</b>	<b>1,2,3,4</b>
<b>Does this proposal require extra revenue and/or capital spending?</b>	<b>No</b>
<b>Report Of:</b> Andrew Carter, Director of Community and Children's Services	<b>For Information</b>
<b>Report author:</b> <b>Robert Wood</b> , Senior Performance Analyst, Department of Community and Children's Services	

## Summary

This report sets out the progress made during Quarter 1 – April to June 2021 against the 2017–2022 Department of Community and Children's Services (DCCS) Business Plan. It also comments on the Departmental Risk Register.

## Recommendations

Members are asked to:

- Note this report and progress of the DCCS Business Plan for Q1 2021–22
- Note the status of Departmental Risks at Q1 2021-22

## Main Report

### Background

1. Progress on the Departmental Business Plan is monitored and reported against a set of 65 Key Performance Indicators (KPIs). The full list of these KPIs and performance can be found in Appendix 1. The majority of KPIs (58 in total) were agreed in 2018 and were designed to reflect changing priorities and demonstrate improved outcomes for our community, residents and workers.
2. Following an internal departmental review, two of the 58 indicators were revised for financial year 2021/22 and one indicator was discontinued. In addition, there are seven indicators which are new to the 2021/22 Business Plan, which were agreed by DCCS service managers and are listed as 'New KPI' in Appendix 1.
3. DCCS is committed to collaborative working with our partners, commissioned providers and organisations. This requires a broader and more transparent reporting framework that assures us of good progress, achievements and realisation of our action plans.



4. An outcomes-based accountability framework requires that we measure volume and activity and that we demonstrate the positive effect of services and the impact on all sections of the community, ensuring equality of access, participation and satisfaction.
5. The current version of the Departmental Business Plan ends in 2022. There may be changes to Departmental Business Plans in line with the new Target Operating Model and any review of the Corporate Plan in 2023. As a result, it is likely that there will be a significant review of the Departmental KPI suite going forward.
6. At the January 2021 Community and Children's Services Committee Meeting, members considered the annual headline Business Plan for the Department. This contained a selected list of KPIs that reflected the work of the Department.
7. The Departmental Business KPIs are drawn from wider suites of performance information across the Department and more detailed suites of KPIs and information is considered in various relevant committees including Safeguarding Sub-Committee, Education Board and Housing Management and Almhouses Sub-Committee.

### **DCCS Business Plan KPI Performance**

8. Overall performance in Q1 2021-22 shows the Departmental KPIs as:

<b>RAG status</b>	<b>Traffic light description</b>	<b>Total KPIs*</b>
<b>Green</b>	KPIs for which the set target was achieved or exceeded	16 (25%)
<b>Amber</b>	KPIs within the tolerance of 10% of the set target	8 (12%)
<b>Red</b>	KPIs that are below the tolerance of 10% of the set target	5 (8%)
<b>Not provided</b>	KPIs where there is no update for the quarter report – these could not be reported due to lack of data	36 (55%)

\* Percentages based on share of RAG-rated indicators

9. Please note that, due to the COVID-19 pandemic and the restrictions which were implemented, many KPIs have been impacted, and reporting suspended in some cases. For example, there were no Standard Assessment Tests (SATs) administered in the summer of 2020 and 2021 due to the ongoing impact of the Covid-19 restrictions. As a result, there was an increase in the number of KPIs which were effectively a nil return (55% in total), with other KPI reporting cycles being affected.
10. It should be noted that the annual performance outturn from the past year has been provided for context and to better understand the direction of travel.
11. Commentary on the Red and Amber rated indicators for Q1 of 2021-22 is set out below.



## **Amber and Red Performance Indicators: Commentary**

12. **BP12 (Amber) - The library's services and activities have a positive impact on my family's health and wellbeing.**
13. **BP13 (Amber) – The library offers a good range of learning opportunities for individuals and groups of people.**

Currently, all events are online and very popular - most are over-subscribed. However, the service experienced problems in getting attendees to complete the online evaluation forms and consequently there have been lower numbers of returns.

14. **BP14 (Red) Percentage of people engaging in City smoking cessation programmes who quit smoking** – A new service began on the 1st April 2021 and the pandemic is a contributing factor for the low number of people accessing the service to date.
15. **BP16 (Red) Number and proportion of participants who completed the weight management programme in the period** - We are looking at options to recommission the service as we are not generating referrals. A new service will be operational from January 2022.
16. **BP18a (Amber) Take up of e-services for sexual health testing – % and number of people who return a kit and receive their results within 21 days of ordering it** – There was a minor decrease in performance was due to a combination of the impact of COVID and longer term changes in service user patterns (for example, ordering kits ahead of when they will be needed). The supplier-controlled aspects of performance in the measure remain above target.
17. **BP26 (Amber) Increased proportion of service users live within the community (not residential or nursing)** At Q1 2021-22 – of the 112 Clients; 86 (77%) were from Community; and 26 (23%) were from a Nursing & Residential service (16 residential and 10 were nursing).
18. **BP27 (Amber) Reduction of average cost of residential social care - Q1 2021/22 (£735.96)** is comparable with the 2020/21 YTD outturn (£700) although slightly above target. Availability of placements has decreased during the pandemic while costs of new placements have risen considerably.
19. **BP31 (Red) The improved timeliness of pathway plans (three months for initial review followed by every five months)** -Work is currently being undertaken on the pathway plan workflow and reporting for children in care, therefore the data here for Q1 is at present only for the number of Care Leavers. As at 30 June there were 44 care leavers, but only 11 had a most recent pathway plan review that had been delivered within 5 months of the previous review giving a rate of 25%.  
It should though be noted that the rate when looking at the most recent pathway plan review being within 6 months of the previous review (the statutory timeline used in children's social care); then the rate improves to 31 out of 44 care leavers (70.5%).



20. **BP33 (Red) An increased proportion of new rough sleepers who sleep out just once** - No Second Night Out services for new rough sleepers with no local connection to the City of London remain closed. Rough sleeping numbers are down so the number of individuals who spent more than one night out was 9 compared to 17 in the same period 2020/21.
21. **BP34 (Amber) Number and proportion of people deemed 'living on the streets' is below Inner London average** -The 'Everyone In' initiative throughout the pandemic has led to increased urgency and persistence from the outreach team in engaging rough sleepers. This accelerates the speed at which new rough sleepers qualify for 'Living on the Streets' if they are resistant to service offers.
22. **BP35 (Amber) Increase in average energy-efficiency rating for our housing stock – It should be noted that** project work is not yet complete before the Energy Performance Certificate data has been updated, thus the provisional outturn for quarter 1 may be liable to change subsequently.
23. **BP39 (Amber) All properties are fully compliant with gas safety regulations** -There were only 9 properties are non-compliant as at 30th June. Property Services work closely with housing management to gain entry to these properties.
24. **BP48 (Red) Proportion of Portsoken Pavilion Café employees from the local community** – It should be noted that the provider has now ended its lease to manage the Portsoken Pavilion Café.

### Departmental Risk Register Summary

25. Appendix 2 contains a summary of the Departmental Risk Register. As can be seen, the Department **has no red risks at Quarter 1 and one risk at amber, safeguarding (CR17), is a corporate risk.**

### Implications

26. The work of the Department is wide-ranging and contributes to a range of Corporate Priorities including specifically:
  - Priority 1: People are safe and feel safe
  - Priority 2: People enjoy good health and wellbeing
  - Priority 3: People have equal opportunities to enrich their lives and reach their full potential
  - Priority 4: Communities are cohesive and have the facilities they need.



## **Conclusion**

27. This report updates Members on performance as at Q1 2021-22 against a suite of Departmental Business Plan KPIs.
28. The ongoing COVID-19 restrictions have had an impact on some of our reporting; for example, where services have changed or where reporting has been suspended.
29. This report also gives members further detail about any performance rated Amber or Red.

## **Appendices**

- Appendix 1 – Q1 2021-22 Key Performance Indicators (KPIs) Update.
- Appendix 2 – Q1 2021-22 Departmental Risk Register Summary.

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## Appendix 1 – Q1 2021-22 Key Performance Indicators Update

### Key:

DOT: Direction of travel  
Frq: Frequency of reporting  
YTD: Year to date  
National: National average

### RAG ratings:

G – Achieved or exceeded  
A – 10% tolerance  
R – below tolerance of 10%  
Blank- Not available  
Duplicated KPI



## 1. Delivering an outstanding education offer through the City of London family of schools

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	2021/22				
				Q1	Q2	Q3	Q4			Q1 Commentary	RAG	DOT	Freq	Changed
1	BP1	All City-sponsored academies achieve and maintain good or outstanding Ofsted ratings	100%	N/A	100%	100%	100%	100%	100%		Green	↔	Q	Improved
1	BP2	Pupils make good progress at KS4 in City-sponsored academies (*Progress 8 measure) (FFT Aspire estimate provided where GCSE discontinued)	-0.64 *	N/A	N/A	N/A	N/A	Above 2020 national benchmark	N/A	Please note that data is unavailable due to the impact of the Covid 19 pandemic restrictions.	N/a	↔	A	N/a
1	BP3	Pupil premium children (FSP, LAC, adopted, SGO) at City sponsored academies make good progress at KS2 and KS4 (KS2 & KS4 Progress measures; FFT Aspire estimates provided where SATs discontinued).	KS2: Redriff Read -3.3, Writ+3.2, Maths +0.9 KS4:	N/A	N/A	N/A	N/A	Above 2020 national benchmark	N/A	Please note that data is unavailable due to the impact of the Covid 19 pandemic restrictions.	N/a	↔	A	N/a
1	BP4	Progress and attainment at school stages (KS2) that is considerably above national levels	Aldgate School 82%, Redriff 69% (RWM)	N/A	N/A	N/A	N/A	Above 2020 national benchmark	N/A	Please note that data is unavailable due to the impact of the Covid 19 pandemic restrictions.	N/a	↔	A	N/a



## 2. Securing efficiencies and better outcomes through the integration of health and social care commissioning across the City of London and Hackney (and with other partners)

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	2021/22				
				Q1	Q2	Q3	Q4			Q1 Commentary	RAG	DOT	Freq	Changed
2	BP5a	Reduction in delayed transfers of care (DTOC) (discharges) from hospital – accredited to the NHS	291	N/A	N/A	N/A	N/A	Target set nationally and not yet confirmed	N/A	DTOC reporting has been suspended, due to the impact of COVID-19 and the national lockdown restrictions in place at the time.	N/a	↔	Q	N/a
2	BP5b	Reduction in delayed transfers of care (DTOC) (discharges) from hospital – accredited to Adult Social Care (ASC)	2	N/A	N/A	N/A	N/A	Target set nationally and not yet confirmed	N/A	DTOC reporting has been suspended, due to the impact of COVID-19 and the national lockdown restrictions in place at the time.	N/a	↔	Q	N/a
2	BP6a	Increased number of residents (in contact with service) supported to live independently at home as a result of Early Intervention, and Prevention Services.	363	41	44	49	31	Target not confirmed	41	Quarter 1: 41 people were supported by City Connections through the care navigators and a community support assessment (additionally 18 people were supported through carers services).	N/a	↑	Q	N/a
2	BP6b	Proportion of clients reporting improved quality of life as a result of Early Intervention and Prevention services (EIP)	77%	75%	72%	74%	83%	Target not confirmed	87%	Overall satisfaction scores were 100%, 86.6%, 90% and 86.6% for questions relating to safety, neighbourhood, independence and quality of life. As with previous quarters, it is possible that the national Covid-19 situation has had an impact on these results.	N/a	↑	Q	N/a
2	BP6c	Proportion of residents/carers who got in contact with the City that are referred onwards to other relevant services	35%	N/A	N/A	52%	N/A	Target not confirmed	62%	34 individuals were referred to City Connections (21 from the City's Adult Social Care Service (62%). Onward referrals were made to 26 different activities and organisations	N/a	↑	Q	N/a
2	BP7	Proportion of people age 65+ who require less support following a period of rehabilitation (at home 91 days after discharge from hospital)	78% (n=9)	100% (3/3)	66% (4/6)	63% (5/8)	70% (7/10)	85%	N/A		N/a	↔	Q	N/a



### 3. Promoting effective transitions and progression through education and fulfilling employment

				2020/21 Progress						2021/22				
Group	No.	Key Performance Indicators	2019/20 outturn	Q1	Q2	Q3	Q4	2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
3	BP8	Proportion of completions of City apprenticeships and positive destinations (employment or further training)	80%	N/A	N/A	84%	87%	100%	100%		Green	↑	A	Improved
3	BP9	Percentage of City young people (aged 16 and 17) not in education, employment or training (NEET & unknown)	3.2% (cohort of 50) NEET, employment without training/ education & not known	N/A	N/A	N/A	N/A	Below 2019/20 national average (5.5%)	2.0% (from cohort of 50)		Green	↓	A	No
3	BP10	Increased number and percentage of apprentices employed by the City from Black and Minority Ethnic backgrounds	36%	N/A	40%	39%	41%	Target not confirmed	40%		N/a	↓	Q	N/a
3	BP11 a	Adult enrolments for adult learning and skills courses (accredited and non-accredited)	3,608 (Target: 2,500)	N/A	105	211	223	Target not confirmed	N/A		N/a	↔	A	N/a
3	BP11 b	Annual proportion of adult learners who pass an adult skills course	n/a	N/A	78%	N/A	N/A	Target not confirmed	N/A	The data for Quarter 1 will not be available until Quarter 2 2021/22.	N/a	↔	A	N/a
3	BP12	The library's services and activities have a positive impact on my family's health and wellbeing	94%	N/A	N/A	N/A	100%	86%	81%	It is recognised that, in the current context, surveys need to be shared more widely in different ways, and staff need to explain to library users the importance of relevance of the surveys. This is underway and it is expected that the figures will improve.	Amber	↓	Q	No
3	BP13	The library offers a good range of learning opportunities for individuals and groups of people	85%	N/A	N/A	76%	85%	90%	85%	It is recognised that, in the current context, surveys need to be shared more widely in different ways, and staff need to explain to library users the importance of relevance of the surveys. This is underway and it is expected that the figures will improve.	Amber	↔	Q	No
3	New KPI	Assess the Value of our Children's Events: 'My Child has the opportunity to make friends'						Target not confirmed	100%		N/a	↔	Q	N/a
3	New KPI	Assess the Value of our Children's Events: 'I have the opportunity to make friends'						Target not confirmed	50%		N/a	↔	Q	N/a
3	New KPI	Assess the Value of our Children's Events: 'The library's services and activities help with my child's development (co-ordination and motor skills, speech and language)'						Target not confirmed	50%		N/a	↔	Q	N/a



#### 4. Promoting equality in health through outreach to all the City communities

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	Q1 Commentary	2021/22			
				Q1	Q2	Q3	Q4				RAG	DOT	Freq	Changed
4	BP14	Percentage of people engaging in City smoking cessation programmes who quit smoking	57% (n=143)	N/A	N/A	N/A	N/A	52% (n=500)	33% (n=3)	A new service began on the 1st April 2021; the pandemic has been a contributing factor for the low number of people accessing the service to date.	Red	↔	Q	No
4	BP15	Residents taking up an NHS health check	196	N/A	11	100	38	191	23	Provider has issues with the dashboard and signing it off, and have estimated the data will likely take a few weeks.	N/a	↓	Q	N/a
4	BP16	Number and proportion of participants who completed the weight management programme in period	68% (n=31)	N/A	N/A	N/A	N/A	70% (n=30)	0%	We are looking at options to recommission the service as we are not generating referrals. New service from January 2022.	Red	↔	Q	No
4	BP17	Use of the Golden Lane Sport and Fitness Centre by young people	Q1– 4 (averaged): 5,895 (Q4 data was not available due to centre staff	N/A	N/A	N/A	N/A	7282	260	The centre reopened on the 12th April 2021 with Covid restrictions in place.	N/a	↔	Q	No

#### 5. Increasing access to and effectiveness of pan-London sexual health services through the mobilisation of e-healthcare services

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	Q1 Commentary	2021/22			
				Q1	Q2	Q3	Q4				RAG	DOT	Freq	Changed
5	BP18 a	Take up of e-services for sexual health testing – % and number of people who return a kit and receive their results within 21 days of ordering it	74%	79%	75%	68%	77%	70%	69%	A minor decrease in performance was due to a combination of the impact of Covid and longer term changes in service user patterns (ordering kits ahead of when they will be needed). Supplier controlled aspects of performance in the measure remain above target. The related authorities are kept informed and agreement sought for changes to the KPI or relief at the accountable board.	Amber	↓	Q	No
5	BP18 b	Increased satisfaction with e-services for sexual health testing (%)	99%	99%	99%	99%	99%	90%	99%	At Quarter 1, a high level of satisfaction was maintained.	Green	↔	Q	No



## 6. Delivering more homes and better meet social housing needs

				2020/21 Progress						2021/22				
Group	No.	Key Performance Indicators	2019/20 outturn	Q1	Q2	Q3	Q4	2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
6	BP19 a	Number of planning consents (no. units given)	0	N/A	N/A	N/A	N/A	115	0	For the period 1 April 2021 to 30 June 2021 the answer is '0' for planning consents, construction starts and completions.	N/a	↔	A	N/a
6	BP19 b	Number of construction starts (no. units given)	0	N/A	0	0	5	115	0		N/a	↓	A	N/a
6	BP19 c	Number of completions (no. units given)	10	N/A	0	0	0	5	0		N/a	↔	A	N/a

## 7. Improving outcomes and services for children and young people with special education needs and disabilities

				2020/21 Progress						2021/22				
Group	No.	Key Performance Indicators	2019/20 outturn	Q1	Q2	Q3	Q4	2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
7	BP20	Proportion of EHC plans completed for SEND children within 20 weeks' timeframe.	100%	N/A	100%	N/A	100%	100%	N/A	There were no EHCPs issued in Quarter 1.	N/a	↔	Q	N/a
7	BP21 (Revised)	The proportion of children receiving SEN support attending a local authority maintained school in the City of London' (primary and secondary)					12.6%	16.9%	Cohort number: 8 pupils (Reception to Year 6) receive SEN Support (as distinct from EHC Plans) at the Aldgate School as at the summer census 20/05/2021. The January figure was 16.7%. Due to City's small pupil cohort the percentage has been consistently above the national rate since 2014. For reference, the January 2021 average was12.6%.		Green	↔	A	New
7	New KPI	'The number of Children & Young People on EHCPs maintained by the City of London'.					Target not confirmed	20	The period March 2020 to April 2021 saw a 25% increase in the number of children and young people with EHCP's, and a 50% increase in the number being referred for a EHC needs assessment.		N/a	↔	Q	N/a
7	BP22	Educational progress of children with SEND at KS2	Information cannot be reported due to small numbers.	N/A	N/A	N/A	N/A	n/a (no result 2021)	n/a (no result 2021)	No information is presently available. The impact of Covid restrictions meant that there were no KS2 exams in 2021. KS2 exams are not due to resume until Summer 2022 (which was confirmed by the DfE in July 2021).	N/a	↔	A	N/a
7	BP23	An increased number of SEND children take up use of youth services (youth services (Universal, holiday, IAG, NEET, City youth forum, young carers)	5	N/A	3	3	8	Target not confirmed	12	2 CYMCA, 10 Prospects, 0 London Borough of Tower Hamlets.	N/a	↑	Q	N/a



## 8. Improving outcomes and experience for adult social care users

				2020/21 Progress						2021/22				
Group	No.	Key Performance Indicators	2019/20 outturn	Q1	Q2	Q3	Q4	2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
8	BP24	Adult Social Care service user and carer reported quality of life (survey outcome)	7.5 (carers) * – 19.3 (users) *	N/A	N/A	N/A	N/A	Above 2019/20 London average	TBC	TBC will be conducted during 2021/22.	N/a	↔	A	N/a
8	BP25	Proportion of adult social care service users who say services have made them feel safe and secure (survey outcome)	87.9% *	N/A	N/A	N/A	N/A	Above 2019/20 London average	TBC	TBC will be conducted during 2021/22.	N/a	↔	A	N/a
8	BP26	An increased proportion of service users live within the community (not residential or nursing)	76%	N/A	75%	77%	77%	80%	77%	Quarter 1 2021/22 - Of the 112 Clients, 16 were Residential (14%); 10 were Nursing (9%); 86 (77%) were from Community; and 26 (23%) were from Nursing & Residential.	Amber	↔	Q	No
8	BP27	Reduction of average cost of residential social care	£692	N/A	£749	£824	£691	£700	£736	Quarter 1 2021/22 (£735.96) is comparable with the 2020/21 YTD outturn (£700) although slightly above target. The availability of placements has decreased during the pandemic whilst the costs of new placements have risen considerably.	Amber	↑	Q	No
8	BP28	An increased proportion of clients (services users) are on direct payments (DP)	31%	N/A	40%	39%	38%	National 2018/19: 28.3%; (2019/20: 27.3%)	33%	Quarter 1 2021/22 – 28 of the 86 in the community received Direct Payments (33%). The service actively promotes and supports people to use Direct Payments as a way of managing their own services. However, there is strong management oversight (as evidenced in the Direct Payments audit) to ensure that they are used effectively and within the guidelines.	Green	↓	Q	No



## 9. Safeguarding children, young people and adults at risk

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	2021/22				
				Q1	Q2	Q3	Q4			Q1 Commentary	RAG	DOT	Freq	Changed
9	BP29 a	CIN – On a Child in Need Plan for one year but less than two years – % and number	0%	N/A	37%	65%	57%	Not comparable due to cohort	68%	As at 30th June, eight CYP had been CIN for between 12 and 24 months. Four of these were Children with Disabilities, and two had been subject of Child Protection Plans.	N/a	↑	Q	N/a
9	BP29 b (Revised)	CIN - 'Child in need for a duration of two or more years without an Education, Health & Care Plan' - % and number	0%	N/A	0%	18%	14%	Not a national indicator	80%	As at 30th June, a total of five CYP had been CIN for two or more years. Of these one child was subject of an EHCP. Of the other four, three had been subject of CP Plans, and the other had been at risk of offending, including criminal exploitation.	N/a	↑	Q	N/a
9	BP29 c	CPP – On a Child Protection Plan for one year but less than two years – % and number	60% (<5)	N/A	0%	0%	67%	Not a national indicator (two years+ is the	0%	As at 30th June, three CYP were subject of CP Plans. None had been on a Plan for more than 12 months. Two of these plans had commenced during June 2021, the third had been open for 11 months.	N/a	↓	Q	N/a
9	New KPI	'Children Looked After with three or more placements since April'. - % and number	21%					Below 2019/20 Inner London average (11%)	0%	As at 30th June, 19 young people were Children Looked After. Placement stability has been very good during Quarter 1 and none have moved to a third placement since April.	Green	↓	Q	Improved
9	BP30	Percentage of assessments for children's social care carried out within 45 working days of referral	73%	N/A	89%	100%	100%	Above 2019/20 Inner London average (82%)	100%	Nine child and family assessments were completed during Quarter 1, All were completed within 45 working days.	Green	↔	Q	No
9	BP31	The improved timeliness of pathway plans (three months for the initial review followed by every five months)	59%	33%	32%	26%	24%	100%	25%	Work is currently being undertaken on the pathway plan workflow and reporting for children in care, therefore the data here for Quarter 1 is at present only for the number of Care Leavers. As at 30th June there were 44 care leavers, but only 11 had a most recent pathway plan review that had been delivered within 5 months of the previous review; giving a rate of 25%.	Red	↑	Q	Improved
9	BP32	Number and percentage of adults referred for safeguarding (such as abuse or neglect) whose expressed outcomes are fully or partly met	Not currently available as Safeguarding Reports are under review.	N/A	N/A	N/A	N/A	96%	N/A	During Quarter 1 2021/22, the two S42 Enquiries had not concluded by the end of the reporting period. There were 3 conclusions during this period but these concerns did not develop to a S42 enquiry.	N/a	↔	Q	N/a



## 10. Delivering and enhancing 'accommodation pathways' and health services for rough sleepers

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
				Q1	Q2	Q3	Q4							
10	BP33	An increased proportion of new rough sleepers who sleep out just once.	65%	N/A	48%	64%	66%	76%	57%	No Second Night Out services for new rough sleepers with no local connection to the City of London remain closed. Rough sleeping numbers are down so the number of individuals who spent more than one night out was 9 compared to 17 in the same period 2020/21.	Red	↓	Q	No
10	BP34	Number and proportion of people deemed 'living on the streets' is below Inner London average	58; (at end of Q3 19/20)	N/A	40	44	34	Below 2020 average (36)	37	The 'Everyone In' initiative throughout the pandemic has led to increased urgency and persistence from the outreach team in engaging rough sleepers. This accelerates the speed at which new rough sleepers qualify for 'living on the streets' if they are resistant to service offers.	Amber	↑	Q	No

## 11. Delivering a programme of major works to maintain and improve our existing homes

Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
				Q1	Q2	Q3	Q4							
11	BP35	Increase in average energy-efficiency rating for our housing stock	64.5	N/A	64	65	65	69	65	It should be noted that project work will not be complete until the Energy Performance Certificate data is updated. Project work will provide improvements that would increase the energy-efficiency, such as replacement windows and doors. Until this work is complete, any assessment (Energy Performance Certificate) of the properties will show no change.	Amber	⇔	A	No
11	BP36	Proportion of City housing stock meeting 'decent homes' standard	91%	N/A	92%	90%	90%	Above 2018/19 London average (83%)	90%	No further Decent Homes work completed in last quarter.	Green	⇔	A	No
11	BP37	Increased proportion of customer satisfaction with regards to major works improvement programmes	97%	N/A	0%	98%	98%	98%	98%		Green	⇔	A	No
11	New KPI	'Average time taken to re-let local authority housing (days)'						25	N/a	The annual target is 25 days, but the data at Quarter 1 2021/22 awaits verification but will be confirmed by the end Quarter 2.	N/A	⇔	Q	N/A
11	New KPI	'Percentage of rent collected'						Target not confirmed	89%	There was an outturn of 89.4% for Quarter 1 2021/22.	N/A	⇔	Q	N/A



## 12. Maintaining safe homes that comply with advances in fire safety requirements

				2020/21 Progress						2021/22				
Group	No.	Key Performance Indicators	2019/20 outturn	Q1	Q2	Q3	Q4	2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
12	BP38	Blocks of flats with a valid and up-to-date fire risk assessments	100%	N/A	100%	100%	100%	100%	100%	No change in Quarter 1. However, signifciant building work will require a review post-completion.	Green	↔	A	No
12	BP39	All properties are fully compliant with gas safety regulations	99.8%	N/A	99%	100%	99%	100%	99%	There were only 9 properties are non-compliant as at 30th June. Property Services work closely with housing management to gain entry to these properties.	Amber	↔	A	No

## 13. Supporting City of London businesses and the Corporation to improve their employee's health and wellbeing and participation in health and wellbeing activities

				2020/21 Progress						2021/22				
Group	No.	Key Performance Indicators	2019/20 outturn	Q1	Q2	Q3	Q4	2021/22 Target	Q1	Q1 Commentary	RAG	DOT	Freq	Changed
13	BP40	Percentage satisfaction with Business Healthy events and activities	90%	N/A	99%	95%	96%	70%	100%	3 online sessions were hosted: City & Hackney COVID-19 advice webinar for businesses (114 attendees), employer roundtable on supporting City workers to access the COVID-19 vaccine (16 attendees, 3 responses), and a Suicide Prevention Awareness session (8 attendees, 3 responses).	Green	⬆	Q	Improved
13	BP41	Dragon Café visitors strongly agree/agree that the cafe helped to improve their mental wellbeing	94%	N/A	80%	100%	90%	76%	76%	There were 250 attendees to Dragon Café in the City in Quarter 1 2021/22, across 7 sessions. Of those, 13 provided feedback (10 strongly agreed/ agreed that attending the café helped to improve their mental wellbeing).	Green	⬇	Q	No



## 14. Supporting the development of skills and learning for all ages in the community through a range of activities, resources and support and enhance the art and culture offer in the City


































Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	2021/22				
				Q1	Q2	Q3	Q4			Q1 Commentary	RAG	DOT	Freq	Changed
14	BP42a	Percentage of children achieving good level of development in foundation stage profile (FSP)	85%	N/A	N/A	N/A	N/A	Target not confirmed	62%		N/a	↔	A	N/a
14	BP42b	Percentage inequality gap in achievement across all the Early Learning Goals	31%	N/A	N/A	N/A	N/A	Target not confirmed	N/A		N/a	↔	A	N/a
14	BP43	Percentage of primary school offers meeting first choice	89% (n=27)	89%				87%	89%	The April 2021 Primary National Offer for September 2021 Reception entry. Applications were made by the families of 28 City resident children, and of these 25 were offered their first preference. Please note that each applicant may apply for up to six preferences.	Green	↔	A	No

## 15. Promote and champion inclusion, diversity, accessibility and social mobility for all the communities we support










Group	No.	Key Performance Indicators	2019/20 outturn	2020/21 Progress				2021/22 Target	Q1	2021/22				
				Q1	Q2	Q3	Q4			Q1 Commentary	RAG	DOT	Freq	Changed
15	BP44	Increased proportion of Bangladeshi girls/young women take up of youth services (youth services (Universal, holiday, IAG, NEET, City youth forum, young carers)	0	N/A	6	5	6	Target not confirmed	9	0 CYMCA. 3 Prospects and 6 London Borough of Tower Hamlets.	N/a	↑	Q	N/a
15	BP45	Proportion of people with learning difficulties supported to live independently	100%	N/A	73%	82%	79%	80%	89%	During Quarter 1 2021/22, there were 9 people with Learning Disability accessing Long-term support at YTD and 8 of the 9 (89%) were in the community.	Green	↑	Q	Improved
15	BP46	Percentage of participants involved in community activities and volunteering reporting an improved quality of life	87%	N/A	N/A	N/A	N/A	60%	N/A	There was no figure for Quarter 1 2021/22 as the annual survey was delayed (purposefully) due to Covid.	N/a	↔	A	N/a
15	BP47	Proportion of residents involved in community activities who are new to volunteering	36%	N/A	N/A	N/A	72%	30%	71%	This represents the number of volunteers who joined the network in Quarter 1 (17) and from this the number of volunteers who registered with status 'I have never volunteered before' or 'I have volunteered in the past but not recently'(12).	Green	↓	Q	No
15	BP48	Proportion of Portsoken Pavilion Café employees from the local community	65% (n=23); (at end of Q3 19/20)	N/A	N/A	N/A	N/A	25%	0%	Kahaila have ended its lease to manage the Portsoken Pavilion Café.	Red	↔	Q	No






## Appendix 2: Quarter 1 2021-22 Departmental Risk Register Summary

Risk Code	Title	Current Risk Rating	Risk Score	Actions Assessment	Risk Approach	Target Date	Risk Trend
DCCS HS 003	Lone Working	A 	12		Reduce		
CR17	Safeguarding	A 	8		Accept		
DCCS 001	Departmental Emergency Response	A 	8		Accept		
DCCS ED 001	Failure to deliver City of London Academy expansion programme	A 	8			30/09/21	
DCCS HS 002	Failure to carry out and review effective fire risk assessments for residential and commercial accommodation	A 	8			31/03/22	
DCCS 006	Failure to deliver new homes programme	A 	8			31/03/25	
DCCS ED 002	Failure of the City of London Academies to meet the high performance and financial expectations of the City of London	A 	6			31/03/22	
DCCS HS 001	Health and Safety Procedures	A 	6			31/03/22	
DCCS HS 004	Housing Finance Changes	A 	6			31/03/22	
DCCS HS 005	Major works programme	A 	6		Reduce		
DCCS 002	Impact of Brexit on Local Communities	G 	4			31/09/21	

### Covid-19 – Communities (including schools) Silver Risk Register

Risk Code	Title		Risk Score	Actions Assessment	Risk Approach	Target Date	Risk Trend
CVD19 SG CM 01	Vulnerable Adults and Children	A 	6		Reduce	31/12/21	
CVD19 SG CM 03	Housing and Communities	A 	6		Reduce	30/09/21	
CVD19 SG CM 07	Re-opening of schools, Adult Skills and Education Service and other childcare settings	A 	6		Reduce	31/12/21	

 Actions to mitigate the risk are in place and are being delivered to anticipated timescales.  Some delays in implementing planned actions

Risk Trend:  Unchanged since last report  Increased risk rating – see body of report for details  Decreased risk rating since last report



Risk Score Key:

		Impact					
		Minor	Serious	Major	Extreme		
		(1)	(2)	(4)	(8)		
Likelihood	Likely (4)	4	8	16	32	Red (Severe)	Urgent action required to reduce rating
	Possible (3)	3	6	12	24	Amber (Significant)	Action required to maintain or reduce rating
	Unlikely (2)	2	4	8	16	Green (Manageable)	Action required to maintain rating
	Rare (1)	1	2	4	8		



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