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City of Westminster

Committee Agenda

Title:	**Climate Action, Housing and Regeneration Policy and Scrutiny Committee**
Meeting Date:	**Tuesday 6th June, 2023**
Time:	**6.30 pm**
Venue:	**Rooms 18.06-18.08, 18th Floor, 64 Victoria Street, London, SW1E 6QP**
Members:	**Councillors:** Concia Albert Gillian Arrindell Laila Cunningham Robert Eagleton Elizabeth Hitchcock Alan Mendoza Cara Sanquest

Members of the public are welcome to attend the meeting and listen to the discussion Part 1 of the Agenda.

Admission to the public gallery is by ticket, issued from the ground floor reception. If you have a disability and require any special assistance please contact the Committee Officer (details listed below) in advance of the meeting.

If you require any further information, please contact the Committee Officer, Linda Hunting, Policy and Scrutiny Advisor. Email: lhunting@westminster.gov.uk

Corporate Website: www.westminster.gov.uk

Note for Members: Members are reminded that Officer contacts are shown at the end of each report and Members are welcome to raise questions in advance of the meeting. With regard to item 2, guidance on declarations of interests is included in the Code of Governance; if Members and Officers have any particular questions they should contact the Head of Committee and Governance Services in advance of the meeting please.

AGENDA

PART 1 (IN PUBLIC)

1. ELECTION OF CHAIR

To elect a Chair of the Committee. The Majority Group have nominated Councillor Concia Albert. No other nominations have been received. Any Member may nominate any other Member to Chair in advance of and at the meeting itself.

This item will be conducted by the Committee Clerk.

2. MEMBERSHIP

To note any further changes to the membership.

3. DECLARATIONS OF INTEREST

To receive declarations by Members and Officers of the existence and nature of any pecuniary interests or any other significant interest in matters on this agenda.

4. MINUTES **(Pages 5 - 12)**

To approve the minutes of the Committee's previous meeting held on 19 April 2023.

5. PORTFOLIO UPDATE - CABINET MEMBER FOR HOUSING **(Pages 13 - 18)**

To receive an update from the Cabinet Member for Housing, Councillor Liza Begum.

6. PORTFOLIO UPDATE - CABINET MEMBER FOR CLIMATE ACTION, REGENERATION AND RENTERS **(Pages 19 - 26)**

To receive an update from the Cabinet Membership for Climate Action, Regeneration and Renters, Councillor Matt Noble.

7. RETROFITTING IN WESTMINSTER **(Pages 27 - 34)**

To examine retrofitting in Westminster.

8.	**COUNCIL OWNED HOUSING STOCK RETROFITTING PLANS** To investigate retrofitting plans for Council-owned housing stock.	**(Pages 35 - 164)**
9.	**WORK PROGRAMME REPORT** To discuss and shape the Committee's work programme for the municipal year 2023-2024.	**(Pages 165 - 178)**

Stuart Love
Chief Executive
26 May 2023

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CITY OF WESTMINSTER

MINUTES

Climate Action, Housing and Regeneration Policy and Scrutiny Committee

MINUTES OF PROCEEDINGS

Minutes of a meeting of the **Climate Action, Housing and Regeneration Policy and Scrutiny Committee** held on **Wednesday 19th April, 2023**, Rooms 18.01 & 18.03, 18th Floor, 64 Victoria Street, London, SW1E 6QP.

Members Present: Councillors Gillian Arrindell, Robert Eagleton, David Harvey, Elizabeth Hitchcock, Patricia McAllister (Chair), Alan Mendoza, and Cara Sanquest.

Also Present: Councillor Liza Begum (Cabinet Member for Housing Services), Councillor Matt Noble (Cabinet Member for Climate Action, Regeneration and Renters), Damian Hemmings (Climate Emergency Programme Director) (virtual), Linda Hunting (Policy and Scrutiny Advisor), Debbie Jackson (Executive Director Growth, Planning, and Housing), Anthony Jones (Head of Housing Sustainability - Growth, Planning and Housing), Jim Patterson (Divisional Head of Sustainability and Major Works) (virtual), Chris Spicer (Strategic Programme Manager – PDHU), and Neil Whiteman (Head of Housing).

1. MEMBERSHIP

1.1 There were no changes to membership.

2. DECLARATIONS OF INTEREST

2.1 The Committee noted there were no declarations of interest.

3. MINUTES

3.1 The Committee approved the minutes of its meeting held on 8 February 2023.

3.2 The Committee approved the minutes of its meeting held on 2 March 2023.

RESOLVED:

3.3 That the minutes of the Call-In meeting held on 8 February 2023 be signed by the Chair as a correct record of proceedings.

3.4 That the minutes of the meeting held on 2 March 2023 be signed by the Chair as a correct record of proceedings.

4. PORTFLIO UPDATE - CABINET MEMBER FOR HOUSING SERVICES

4.1 The Committee received an update from Councillor Liza Begum, Cabinet Member for Housing Services, on priorities for the portfolio and any updates that have arisen. The Cabinet Member responded to questions on the following topics:

- The management of mould and condensation in Council-owned properties and how complex and historic cases are being managed and prioritised, including, public awareness and what the Council is doing to monitor seasonal issues.
- The Social Housing Decarbonisation Fund.
- The 215 open cases of anti-social behaviour, including 25 open cases in Pimlico, and reporting of anti-social behaviour in reference to specific estates and wards.
- Anti-social behaviour cases and how legal proceedings are being carried out by the Council, including, how this may affect evictions, possessions, injunctions, future applications for re-housing and homelessness, and the actions being taken by the Council toward residents where anti-social behaviour has been an issue.
- Ombudsmen cases, including, cases that have involved vulnerable residents and what steps the Council are putting in place to work with residents.
- The details and lead times of the reporting provided to the Committee across housing repairs, management of damp and condensation, and anti-social behaviour.
- The Rental Support Fund and the possible band of support available for individual tenants, who is targeted for this fund and whether it covers residents who move into places such as retirement homes. The Council estimates this is in the region of 4000 residents. It was further discussed whether there would be an opportunity for the Council to use this fund for rental payment for residents, should the fund be under-subscribed, and the scope for residents to apply for this assistance over the four-year rolling fund, after the first round.
- The Relief Duty Changes, households included on the Housing Register, and how that may affect residents housing situation when applicable residents come off the register if they are placed in accommodation privately due to a reassessment, and that some residents will be housed outside of the borough. It was noted the Council have received 158 registrations for Relief Duty to date.
- The review of the Allocations Scheme by the Council.
- The repair service update, including, the breakdown of the type of repair requested and the figures presented, the figures relating to repair jobs that were a temporary measure and needed to be revisited or completed, and how these repeat jobs are being managed by the Council.

- The Bruckner Street Community Office becoming a Housing Drop-In Centre, whether there is expected to be a knock-on effect of this, and whether there are plans to open further estate offices in the south of Westminster.
- Whether there will be any financial assistance for leaseholders in Westminster in the future, including a discussion about the current repayment plan which helps them to manage payments, more flexibility with service charges and rents, and ways in which the Council can support leaseholders who incur the same types of financial stresses as residents in rented accommodation.
- Many residents, including leaseholders, do not understand how to operate in a financially responsible way in the newer properties with all electric systems. It was noted by the Committee there is a need for more help and guidance to residents who don't understand the energy systems.

ACTIONS:

1. That the details in the reports covering anti-social behaviour be broken down further to include wards or specific estates to give Members a clearer understanding of the figures.

2. That Members be updated on the Relief Duty Households and the effects on the housing register regarding allocations if a resident is housed privately.

3. Rental Support Fund and specific information around leaseholders and their inclusion in that fund or support for them, including information on the funds that had been paid out.

4. That the figures for the total number and type of repairs in reports are checked further prior to be being presented to the Committee and include repair jobs that were temporary and required further work.

5. That information about Bruckner Street becoming a Housing Services drop-in office will expect a knock-on effect as a result of this.

6. That information about how the Council is proceeding with anti-social behaviour cases is provided to the Committee, to include, how this may affect evictions and further applications for housing and what actions the Council is taking in light of these factors.

7. That further information about No Mo May and surrounding initiatives to improve community cohesion be provided to the Committee.

8. That more detailed data and a longer lead time be provided in the Member reports to the Committee, such as, housing repairs, anti-social behaviour, and mould and damp.

9. That further information be provided about how many residents would receive support of the Rental Support Fund and within what band of support.

5. PORTFOLIO UPDATE - CABINET MEMBER FOR CLIMATE ACTION, REGENERATION AND RENTERS

5.1 The Committee received an update from Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters, on priorities for the portfolio and any updates that have arisen. The Cabinet Member responded to questions on the following topics:

- How the organisations that sign up to the Sustainable City Charter are held to account by the Council and how they report to the Council.
- The Westminster Green Investment Bond, the profile of the 480 investors, the size of the investments made, and whether there is scope for the Council to offer another round of Green Bond funding and how that may be structured and allocated to future capital projects, including decarbonisation projects.
- The Climate Assembly, the stratification process for selecting people and the 50 participants being representative of the borough, the Councils climate action goals, the information provided to participants, and the focus of the assembly in areas where residents have a particular stake in.
- Biodiversity and the Wild West End Partnership focussing on green infrastructure exists and where there are opportunities for further green spaces across the City, particularly in more built up areas to include, roof-top and vertical greening projects and working with partners across Westminster and how the initiative can benefit smaller community initiatives and to what extent local residents have input into ideas.
- The goal to increase the number of residents taking appointments for the Green Doctors (GD), what the Council is doing to promote this, and the number of additional appointments (400) that have been purchased by the Council, including, how the Council is monitoring the service the GD provides and whether the assistance to residents is effective, efficient and valid, the cost of the service (circa £40,000) and the information and advice it provides residents. That residents are being encouraged to switch to smart meters by the GD and the potential changes that can be made to a pre-payment smart meter thereafter, how a resident could potentially be without energy if they were unable to credit the meter in advance, and the information that is required for residents in advance.
- The amount of funds available in the Carbon Offset Fund and whether there is scope for grants to be allocated to other green investment projects across the Council.
- The restrictions to the Climate Bond Fund and how this funding must be allocated to projects that are Council capital projects that have returns.
- The Greening Westminster programme, support for community groups, and encouraging applications for small initiatives, how the Council is monitoring applications and considering new ideas to ensure that projects are evenly distributed across local areas, currently and in the future.
- Westminster Builds and the registered provider status and how this Committee should be considering the housing aspect of this and not the investment and financial aspects, as recommended by the Budget Scrutiny Task Group.
- The charity Westminster Community Homes (WCH), how many properties they own (450), and how they became a registered provider of housing to the

Council, including, what aspects of housing the Council is commissioned to manage on behalf of WCH, and how Councillors and residents refer issues.

ACTIONS:

1. Officers to supply data on the investors of the Westminster Green Investment Bond, to include, the organisations involved and whether these are based in or outside of the borough to the Committee.

2. Officers to supply information about the cost of the Green Doctors (circa £40,000) to include, how the cost is calculated, how the Council measures whether the assistance to residents is effective, and what types of information and advice are provided to residents to the Committee.

6. THE PIMLICO DISTRICT HEATING UNDERTAKING (PDHU) DECARBONISATION AND RENEWAL – STRATEGIC OUTLINE CASE

6.1 The Chair welcomed Chris Spicer (Strategic Programme Manager - PDHU) and Anthony Jones (Head of Housing Sustainability - Growth, Planning and Housing) to introduce the report on the Pimlico District Heating Undertaking (PDHU) Decarbonisation and Renewal – Strategic Outline Case and provide an overview of the report. The PDHU Strategic Programme Manager and the Head of Housing Sustainability responded to questions on the following topics:

- The impact of the project and how it will affect residents' bills.
- The number of homes (3300, including 3 estates) and 50 commercial properties, that the PDHU services.
- That the PDHU accounts for 31% of the Council's annual carbon emissions, making the operating and running of the network an asset.
- That it is an ageing asset (being over 50 years old) and therefore there are significant running costs which are increasing and have impact on residents.
- Modernisation of the network and improving reliability for residents.
- Carbon emissions savings to 2030.
- The costs of the project, including the risks and feasibility of the options presented.
- The primary options investigated in the outline business case to achieve the Council's goals, including, retaining the full network and replacing the boilers and installing a supplement River-Source Heat Pump to support the boilers and retaining the gas boilers to provide peak demand, or installing electric boilers to replace the gas, removing Lillington and Longmoore Estates from the network and installing a self-contained energy source for those residents and retain the rest of the network and use a River-Source Heat Pump system with electric or gas boilers for heat demand, and splitting the network into three separate networks to allow more control and ability to manage the interference caused by the works in stages, as well as cost implications.
- The upgrade of the entire network pipe system, which presents as the largest costs of the project, and the risk of higher running costs if this is not carried out.

- The heat pump solution, which has been the most technically and financially viable option in the planning to date, the benefit of this solution producing more energy than it uses, and how this option contrasts to an air source pump system.
- Resident engagement and the plans for the resident groups, the high levels of disruption for residents in dwellings and communal areas, and how that will be prioritised in the plans.
- The operational and capital costs, and the energy costs for running the system.
- Funding of the project, including possible grant funding, a sinking fund, and the majority of the costs incurred around the pipe work renewal that would need to be met by a loan, including the impact this will have on residents service charges year on year.
- Any risks presented in the plans and working with stakeholders, including heritage stakeholders and how the risks are being mitigated.
- The procurement of professional services such as architects and engineers and the level of expertise required.
- The South Westminster Area Network (SWAN) and future options, including the costs and continuing as part of the network and the implications for the PDHU, possible available funding contributions, and the required support from central Government and the Greater London Authority (GLA).
- Legislation about communal heating and the metering for individual households and how that may impact the project.
- The plans for resident consultation and the ratio of leaseholders and tenants.
- Costs versus the carbon reduction, including the costs to residents.
- The potential effect to leaseholders, how they have been advised when they have purchased a property under the PDHU system, potential risks involved to possible legal challenges, Compulsory Purchase Settlements (CPO) applications, decanting, and the formal legal process for consultation with leaseholders.
- The long-term nature of the plans and how technology may change prior to completion.
- The risks highlighted in the plans for the River-Source Heat Pumps.
- The extent to which the intended plans would increase leaseholders' property value and the improvements projected with items such as repairs, leaseholder control, and heating performance.

ACTIONS

1. Officers to supply to the Committee and make available to other Members of the Council, the PowerPoint presentation from the meeting.

7. 2022/2023 WORK PROGRAMME

7.1 The Chair invited the Policy and Scrutiny Advisor to introduce the Committee to the draft Work Programme for the 2023/24 municipal year.

7.2 The Policy and Scrutiny Advisor explained the key changes to the format of the Work Programme document and outlined the priorities, rationale and

format for the items, as well as the timing.

7.3 The Committee approved the draft Work Programme for the next municipal year.

7.4 The following points regarding the Work Programme were noted by the Committee.

- The possibility of Westminster Builds coming to scrutiny following a decision being taken in May 2023.
- Housing Repairs Improvement and the more detailed data and information that is required when it is next presented at Committee in April 2024, in particular, repeat visits to properties. It was further agreed this report to be brought to the Committee at least once per municipal year and a request for this item to be moved to an earlier round in 2023/24.

8. ANY OTHER BUSINESS

8.1 The Committee expressed their thanks and appreciation to the Chair for her guidance throughout this municipal year.

9. TERMINATION OF MEETING

9.1 The meeting ended at 8.58 pm.

CHAIR _____ DATE _____

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Climate Action, Regeneration and Housing Policy and Scrutiny Committee

Date:	06 June 2023
Portfolio:	Housing Services
The Report of:	Councillor Liza Begum
Report Author and Contact Details:	Nick Porter-Ch'ng nporter-ch'ng@westminster.gov.uk

1. **Key decisions made in the preceding period since my last Policy & Scrutiny report dated 19 April 2023:**

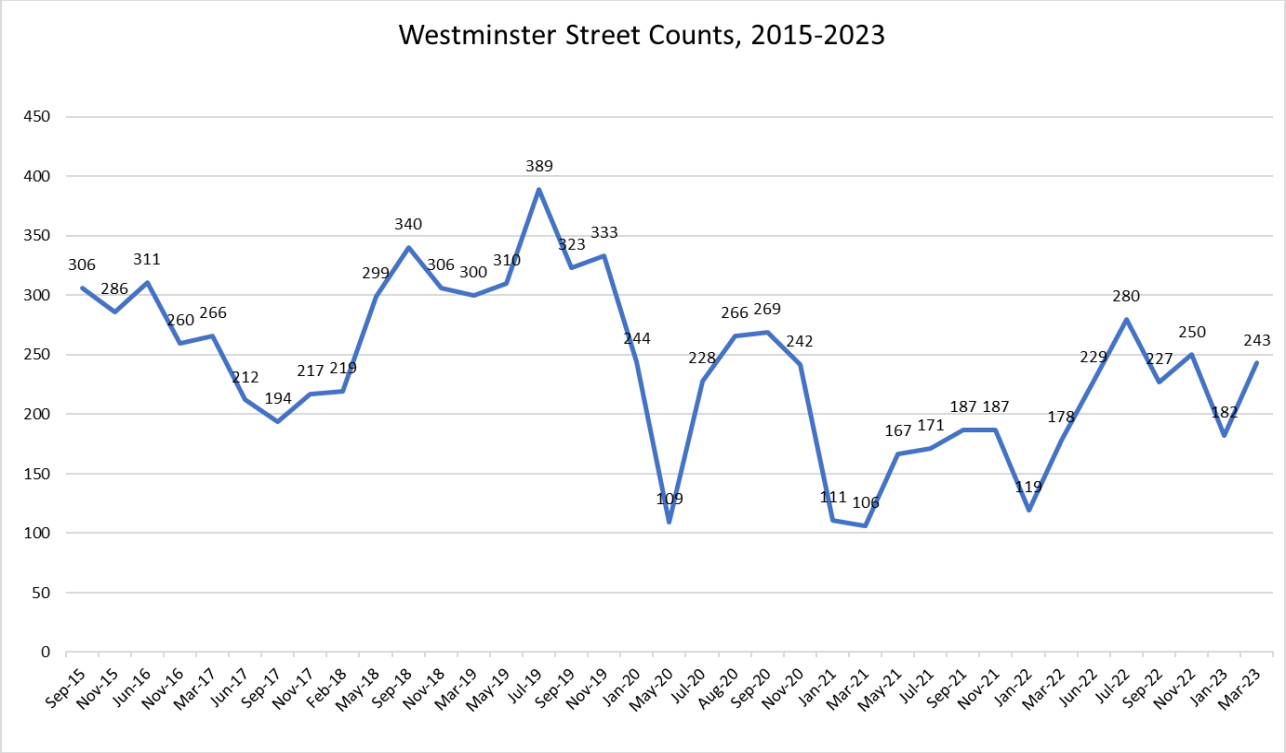
   No decisions have been made.

The following report includes my priorities and delivery progress to date:

2. **Rough Sleeping Update**

The Council's Rough Sleeping Service delivers a range of services to vulnerable people in Westminster that support them in a route away from the street; services provide a trauma-informed approach in psychologically informed environments to support individuals who have faced severe and multiple disadvantage to recover, move into independent housing and be safe from harm.

The street count was 243 rough sleepers in May 2023 on the streets of Westminster.
A further street count will be completed on 23 May 2023.



There is a significant and continual flow of rough sleepers on the streets of Westminster. The vast majority have no local connection to Westminster, and some are only seen for one night. The nature of rough sleeping means individuals are often transient, crossing boroughs, and countries regularly.

Westminster are predicting an increase in the street numbers in May of over 25%
In 2022 we saw a 36% increase between March and June.

Romanian nationals we predict an increase in our total Roma & Romanian numbers.

Currently the sense from our hotspots and flow recording is the cyclical migration of such groups is trending overall higher than 2022.

Hot Spot Tracker

Hot Spots are small footprint areas that have 4 or more rough sleepers recorded in a period bedded down when our outreach teams are out and about.

Street Site	% increase
Edgware Road	+22%
Adelphi Terrace	+/-0%
Holles Street (John Lewis)	+33%
Oxford Street	+/10%
Oxford Street 260-315	+25%
Covent Garden – St Pauls	+30%
Hallfield Estate	+25%
1 Strand (Waterstones)	+26%
Seaforth Place	+/-0%
St James Park	+/-0%
Victoria Street	+/-0%
Abermale Street	+/-0%
Howick Place	+20%

Regents Park (Macclesfield Bridge)	**+20%**
Victoria Piazza	**+20%**
Temple Gardens	**+100%**
Mount Street	**+100%**
Dover Street	**+100%**

Positive work and planned outcomes from the Assessment & Triage Pathway achieved since the March 2023 Street Count

The table below represent the dedicated accommodation spaces for new and returning rough sleepers and the short, medium, and long-term accommodation options achieved across the month of April.

Outcomes	Emergency Short Term Options	Women's respite Rooms	Assessment Centres	Assessment & Triage Service	TOTAL
People currently placed in assessment-based accommodation to relieve their rough sleeping as of 30 April 2023	48	20	72	17	**157**
How many of the 157 listed above were newly accommodated in the month of April 2023	31	8	22	12	**73**
People who have successfully been moved on into medium or long term supported accommodation in April via options that include supported housing or PRS during the month of April	28	5	13	5	**51**

Our work continues with providers and our faith and voluntary sector professionals to reach those most entrenched to achieve more outcomes during 2023.

Complex support needs and histories for rough sleepers in Westminster continues to be our challenge for those who often face severe and multiple disadvantage (substance misuse, domestic abuse, contact with the criminal justice system, mental ill health, poor physical health, removal of children to name a few) with complex histories often involving trauma. These interrelated needs often contribute to homelessness, make it difficult to access or navigate mainstream services and sustain accommodation.

2.1. Anti-Social Behaviour Update

Open ASB Cases	**Total – 150 cases**	
	West – 35 cases	North – 46 cases
	South – 39 cases	Central – 30 cases
Top 3 Categories	Noise – 44 cases.	

(No. of cases)	Drug use / dealing – 38 cases. Verbal abuse / harassment – 36 cases.
Top 3 Wards/Estates	Mozart / Lydford & Avenue Gardens – 21 cases Church street – 11 cases Little Venice – 11 cases
ASB Case Handling Resident Satisfaction	Year to date - 63% (as of May 2023)
Number of Legal Cases	58 (including cases waiting for court hearing dates)

2.3 Repairs Service Update

Unfortunately, the repairs data was not available at the time of publication.

2.4 Rent Support Fund

The Rent Support Fund has been advertised through the following channels

- Web page
- Media release
- Housing newsletter, MyWestminster
- Organic social media across Twitter, Facebook, Instagram and Next Door
- Posters on housing noticeboards and in libraries
- Video with Liza and housing staff in top 5 languages - also used across social media platforms as above
- Paid social media ads on Instagram/ Facebook
- It will also go into the printed housing magazine, which is currently in production
- Targeted text messages have been sent out to residents
- Promoted via LinkedIn
- Distributed via housing offices
- Relayed to Westminster CAB
- Relayed to SHELTER

As at 12/05/2023, we are assisting 160 residents with their live applications, and we have granted 38 awards totalling £19,992.44.

We will be arranging a mini campaign with our communication colleagues in the next 2 weeks to promote the fund across all channels.

2.5 Additional Estate Offices

Bruckner Street

We are opening the Queens Park Housing Service Centre on Tuesday 30th May.

The office space will be shared with the Housing Solutions Service who run a family centre here. We will be opening to local residents Mon-Fri 9-5pm.

2.6 CHIP

The findings and recommendations from the Housing Review will help steer the change to be undertaken in delivering housing services in Westminster. As a next step we are now establishing a Corporate Housing Improvement Programme (CHIP) to support the drive and ambition of delivering the best possible service for our residents.

The programme will bring together leadership and support from across the Council, ensuring maximum collaboration and benefit from the expertise and resources of the wider Council, in delivering future housing services for our residents.

The CHIP will be working alongside the Director of Housing and other colleagues to lead the programme. The programme will be overseen by a Corporate Housing Improvement Board comprised of cross Council leadership, accountability, and support. The Executive Director of Growth, Planning and Housing will oversee this work.

The programme will agree priorities and develop an improvement plan which will be monitored in order to measure impact. The experience and feedback we receive from residents and staff will be central to the approach. We will want to hear about what is working well and also about the opportunities we have to improve further.

2.7 Community Thursdays

Stats update on our connecting with the community and the future schedule perhaps?

Community Thursdays has been running for nearly one year, and we have knocked on <9391 different doors, of which <3381 were opened and we spoke to the resident. There have been 237 different members of Council staff that have attended Community Thursdays, including 17 different councillors and 12 back-office contractor staff. We have visited 102 of our 119 recognised estates.

We are also currently exploring the feasibility of offering Council staff across the council the ability to attend Community Thursdays. The latest schedule of Community Thursdays can be found on our website at Community Thursdays – Bringing Housing Services to Your Door | Westminster City Council

2.8 FOW Commission Housing Review

Last July, Cabinet agreed to create the Future of Westminster Commission (The Commission) to review and make recommendations on the delivery of key council services to help deliver a Fairer Westminster.

The Commission established four workstreams Housing, Economy and Employment, Energy and Green Transition, Fairness and Equality.

The Housing Review was led by residents and professionals from a range of housing related services with decades of industry experience.

Within the Housing Review, there were three lines of enquiry:

• increasing the supply of genuinely affordable housing to meet housing need in the city;

• options for improving the way the Council responds to homelessness and housing need;

• the quality of services provided to the Council's own tenants and leaseholders.

The Council's response to the recommendations contained withing the Housing Review were considered by Cabinet on 15*th* May. Following on from Cabinet many of the resulting actions will now be taken forward by myself and other relevant Cabinet Members and senior officers and incorporated into existing and planned programmes of work, which will in turn be monitored and reported to Policy and Scrutiny and other committees as appropriate.

Where there are initiatives requiring statutory consultation or formal decision making, these will require separate reporting to Cabinet, the relevant Cabinet Member or senior officer for approval.

A separate substantive item on the response to the Commission's Housing Review Report will come to this Committee in July.

City of Westminster

Climate Action, Housing and Regeneration Policy and Scrutiny Committee

Date:	May 2023
Portfolio:	Climate Action, Regeneration & Renters
The Report of:	Councillor Matt Noble
Report Author and Contact Details:	Nikki Costain ncostain@westminster.gov.uk

1. **Key decisions made in the preceding period since my last Policy & Scrutiny report dated 19 April 2023:**
   - **Walden House/Cundy Street Quarter**

2. **The following report includes my priorities and delivery progress to date.**

3. Climate Action

3.1 Westminster Green Investment 2028

Information on the investors to the Green Bond was circulated to Members separately, in response to queries raised at the 19 April Scrutiny Committee. Further details on specific projects funded by the Bond will be released in due course.

3.2 Green Doctors

As of the 18th May 2023, the Green Doctors service has delivered energy advice and support to a total of 261 Westminster residents (109 home visits, 152 telephone consultations). These figures are split between a number of funding sources: Public Health (allocation now complete); Westminster Carbon Offset fund (£45k allocated to support 400 visits – currently active); GLA-funded Warm Homes Advice Service (support for up to 75 visits – currently active).

Contract cost: The costs of the Green Dr service delivered by Groundwork and funded through the Carbon offset fund are set out in the table below. These costs cover: Groundwork staff costs, energy saving measures and other costs (transportation, technology etc).

Consultation Type	**Tele**	**Home**
No. of Consultation	275	125
Cost Per Consultation	£87.63	£168.51
Total	£24,097.91	£21,063.89
Overall Programme Total		**£45,161.80**

Advice and support provided: Energy advice given to residents during both home visits and telephone consultations consists of:

- General heating advice e.g. reduce the time period heating is on, reducing temperature, using radiator valves to control heating of individual rooms.
- Room-by-room advice on reducing energy consumption of appliances and reducing water usage.
- Wider advice on bills and onward referrals, covering fuel poverty, switching, smart meters, debt advice and income and financial support.

Free efficiency measures installed during home visits include, where applicable: low energy lighting, power down devices, radiator panels, draughtproofing and efficient shower heads.

Monitoring: Groundwork provides a range of monitoring information on a monthly basis, including energy, cost and carbon savings resulting from both over the phone advice and in-person support. Savings from installed measures provide an accurate indication of the likely savings made by residents as they are physical changes to support greater efficiency of energy within the property. Savings from behavioural change assume that the advice given is implemented by customers 100% of the time, which is unlikely to be the case. Officers are reviewing scaling-down the project behavioural savings to seek a more accurate indication of the likely savings associated with energy advice.

Furthermore, officers are exploring options to receive more qualitative data from users of the service to elicit user views on the most and least helpful aspects of the advice service. This will be used to inform future service design as we seek to deliver a longer-term support offer for residents.

3.3 Sustainable City Charter

The Sustainable City Charter was launched in 2022 and is an innovative, business-led climate action pledge for organisations. It contains eight commitments for reducing carbon emissions from non-domestic buildings. These cover areas such as energy use, procurement, transport, waste and deliveries, and include committing to net zero buildings by 2040 or earlier.

The Charter has now attracted expressions of interest from nearly 100 organisations, of which 26 have become full signatories. Upcoming activity includes ongoing promotion, targeted engagement with signatories to design a new expanded Charter toolkit and delivering a programme of knowledge-sharing events for signatories throughout the rest of 2023. Both the Technical Working Group and the Steering Group for the Charter are now at full capacity with a good range of signatories represented on each.

3.4 Citizens' Climate Assembly Update

The Westminster Citizens' Climate Assembly will be taking place on the 24th and 25th June, and 15th and 16th July at City Hall. The Assembly will focus on the remit question: 'How can we overcome the main barriers to Westminster becoming a net zero city by 2040 together? How do we ensure this is delivered in the fairest way?'

Cllr Noble will be attending the first session to welcome participants, and the last session to thank them for their time and recommendations. Participants will then present their final recommendations to the Climate Leadership Group in September. Assembly recommendations will then inform the update to the Climate Emergency Action Plan.

The participant invitation letter was recently sent to around 10,000 Westminster households, and 192 individuals signed up to take part. Sortition are now running their selection process and we are on track to achieve 50 participants who are broadly representative of the borough's demographics, whilst slightly oversampling young people, those from the North Paddington wards and those who are financially struggling given the Assembly's focus on fairness.

Stakeholder engagement workshops are currently being led by Involve to introduce the Assembly, gain stakeholder buy-in, and capture perspective to inform session design. The timeline for these workshops is below:

- 24th May: Two online sessions (AM and PM) were held for external partners (Westminster based voluntary, community, public and commercial organisations)
- 6th June: Session for Council Services (i.e., CEAP action owners)
- 8th June: Scheduled to present on the Assembly at Loop Live and at session of the Climate Leadership Group meeting

An Advisory Group has been established to provide oversight of the Assembly process. Members of the Advisory Group include:

- Cllr Matt Noble
- Dr Amy Jones (Director of Environment)
- Pancho Lewis (Climate Citizens Project)
- Syed Ahmed (Energy for London)
- Prof Graham Smith (University of Westminster, Climate Deliberation)
- Rhona Cadenhead (Former Exec Director EDI, Waltham Forest Council)
- Teele Pekh (DD Foundation).

The first meeting was held on 18th May, where Advisory Group members discussed progress so far, as well as ideas of evidence/experts/resources we could use to explore barriers to net zero linked with fairness. Subsequent meetings are to be scheduled for before, between and after the Assembly sessions.

3.5 External Funding Bid news

The Planning and Climate Emergency Team were successful in securing external funding of £300,000 (details on funding source currently embargoed) to support delivery of the Taskforce's priority workstreams for the next two years. These workstreams include:

- Pilot projects to test boundaries of current planning policy and practice to explore innovative retrofit measures and approaches and inform policy and process improvements

- The development of building typology-based delivery approaches/procurement clubs - providing clear, actionable routes to delivering retrofit that simplify, de-risk, upscale and speed up delivery.
- A retrofit skills and training pilot to support the development of local skills base to enable retrofit delivery
- A stewardship programme providing a single, trusted source of retrofit advice and support, including online resource hub, bi-annual retrofit conferences and retrofit demonstrator home

North Paddington Team were successful in their application for the GLA Green and Resilient Spaces Fund. They have been awarded £40,000. Project text below.

'Westminster City Council have an aspiration to truly transform the Grand-Union canal into a blue-green spine for the north of the city. We envision a waterway that is not only an effective walking and cycling corridor, but also as a place that can enrich lives and make a difference to the communities it runs through. This aligns closely with Canal and River's Trust's vision for living waterways, ones that are teeming with wildlife, heritage and people. This bid proposes a joint project between Westminster City Council and The Canal & River Trust, focusing on the North Paddington Canalside between Little Venice and Queens Park. The project will enable us to better connect local people with the waterway, make it more central to their communities whilst strengthening the area's climate resilience and biodiversity.'

3.6 Environmental Justice Measure

The Environmental Justice Measure (EJM) is an interactive data tool that covers a broad range of indicators to present transparent information for residents to better understand how environmental change impacts their local ward. Westminster is the first local authority to create an interactive framework to enable residents to make informed decisions and act to reduce negative environmental impacts in their area.

The Climate Emergency and Strategy and Intelligence teams have recently won a number of awards for their work on the EJM, including the Excellence in Local and Regional Public Sector and the Overall Award at the Geography on Government awards. They are also presenting their work on the EJM at London Councils on 7th June and at the LGA Annual Conference on 5th July.

4. Regeneration

4.1 Church Street Programme Update

Following the unanimous planning decision for the Church Street Regeneration (Sites A, B and C) Scheme in March, progress around land assembly to enable construction work to begin continues at pace. All secure tenants have now been successfully re-housed (either temporarily or permanently). Initial demolition will take place of a storage area to the rear of Site A and the programme will continue as vacant possession is secured of further blocks.

The procurement of a strategic delivery partner is also progressing well. Following the evaluation of the initial selection questionnaires responses and shortlist of four bidders has been identified. Both successful and unsuccessful bidders have been informed of the outcome. The four shortlisted

organisations will receive Invitation to Participate in Negotiations and submit Tenders in the first week of June. Negotiations are scheduled to begin in August. Key to the procurement process is participation of Church Street residents. Recruitment of interested residents has been completed and two have appointed as part of the assessment panel process.

4.2 Ebury Bridge

Construction of Phase 1 continues to progress with completion anticipated summer 2024. This first phase will deliver 226 homes with half of these at social rent levels.

All residents and businesses (located in properties required to be vacated, in order for the Phase 2 blocks to be delivered) are receiving support from the team with their temporary/permanent moves away from the estate. It's anticipated that vacant possession of Bridge, Westbourne, Victoria and Rye Houses will be fully vacated by the end of May.

JF Hunt have been selected as the contractors to carry out the demolition of Phase 2 of the scheme and have begun mobilising in preparation for this work. It is anticipated that this programme of work will be completed by the first half of 2024 and will enable the chosen design and build contractor to begin work swiftly.

Consultation with residents and local neighbours is also taking place around reserved matters for Phase 2 of the scheme. This includes community facilities, public realm and the boundary treatment with surrounding buildings. Initial feedback on proposals has been very well received.

4.3 Balmoral & Darwin House Update

Construction of Block A commenced during March 2023 and is due to reach practical completion in November 2024. This phase will provide 34 Community Supported Homes (CSH), including a warden flat. Reaching this milestone prior to the GLA's March 2023 deadline has unlocked £5m of grant funding with £3.6m claimed to date.

The current design for Block B will provide 18 intermediate tenure homes and works will start in February 2025, following completion of the first block, and will begin with the demolition of Darwin House. A further £1.5m GLA grant is allocated to this phase and the majority of this will be claimed once works start. On 16th April a scheme ground-breaking event was held, attended by Cllr Noble, representatives from the contractor Wates, along with local resident groups.

4.4 Lisson Arches

The Lisson Arches scheme will provide 60 new community supportive homes, 59 of which will be new social rented one-bedroom apartments, along with a two-bedroom scheme manager's residence. There will also be a 1300sqm enterprise business space which forms the base of the building. Construction started in 2020 and completion is expected during summer 2023. Residents of Penn House are due to be moved into their new homes in August 2023.

4.5 Luton Street Award

Following completion at the end of 2022, the Luton Street and Fisherton Street development scheme won the 'Built Environment Award at the Better Society Awards in May 2023. The scheme won the award in a category that celebrates schemes that have contributed to making the environment a better place, in terms of accessibility, use of sustainable materials or energy efficiency.

4.6 Melrose and Keith, Ordnance Mews, Helmsdale House completion

In March 2023, three infills projects; Melrose and Keith, Ordnance Mews, and Helmsdale House reached completion, providing 15 brand new social rent homes.

4.7 Ashbridge, Ashmill and Cosway

The Ashmill development scheme reached practical completion in February 2023, providing two larger sized social rent homes for local families. The Ashbridge scheme is approaching the final stage of completion and will deliver 26 brand new social rent homes.

The Cosway scheme is delivering 49 market sale homes to provide cross subsidy for the development programme and completion is expected in July this year.

4.8 Carlton Dene and Westmead

Construction activity started at the Carlton Dene and Westmead development sites, meaning that the projects have successfully met the GLA's 31st March funding deadline and as a result over £22m grant funding has been secured.

Carlton Dene is delivering 65 self-contained extra care flats along with 22 social rent homes. Following tenure changes agreed during 2022 Westmead is now a 100% affordable scheme delivering 34 social rent and 31 intermediate tenure homes.

5. Renters

5.1 Private Rented Sector Strategy 2021 - 2025

We are now in year four of the five-year Strategy. Key work this year is to develop a Private Rented Sector Charter to raise awareness of tenants' rights, the required standards in the sector and inform tenants and organisations about accessing advice and support.

The Private Rented Sector Strategy Group, which includes members from the advice and landlord sectors, continues to meet regularly to help ensure the Strategy is delivered and to better understand the market. Feedback on an initial outline of the Private Rented Sector Charter was obtained at the last meeting on 17th May

Private rents in Westminster continue to rise with a two-bedroom median home now costing £724 per week in April 2023 compared with £594 in April 2022[1]. The gap between 30th percentile rents and Local Housing Allowance rates is also widening, with the difference now £258 per week compared with £135 per week one year ago for a two-bedroom property.

[1] Hometrack

5.2 Renters Reform Bill 2023

Introduced on 17th May, the Bill follows a White Paper in August 2022 Fairer Private Rented Sector and a consultation on applying the Decent Homes Standard to the sector. It is widely supported. The main provisions are:

1. **The Abolition of Section 21**, 'no fault evictions', which means landlords will have to seek possession on specific grounds. There will be new grounds to allow eviction based on consistently unpaid rent (at least two months arrears at least three times in three years) and if the landlord wishes to sell the property. There are further grounds for anti-social behaviour, such as noise complaints, where the notice period can be shorted to two weeks
2. **Ending of Fixed-term Contracts** i.e., assured shorthold tenancies will be replaced with open-term tenancies with a requirement for two months' notice
3. **New Housing Ombudsman** for the sector which will help to resolve low-level disputes between landlords and tenants, and which will be mandatory for landlords to join
4. **New Register and portal for landlords** where tenants can check if their landlords are compliant with legislation. It will also provide tenants with the opportunity to rate their landlords and look at their letting history to improve accountability
5. **Limits on rent increases,** increasing the notice period from one to two months and only enabling increase once a year
6. **Tenancies can no longer be refused on certain grounds** i.e., having children, receiving benefits or having pets (unless the landlord can justify why having pets is unreasonable etc.)

Local authority enforcement powers are also strengthened and the new Decent Homes Standard for the sector is likely to go ahead.

Officers are working to fully understand the implications of the Bill for tenant security, on the local market and for our enforcement services.

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Climate Action, Regeneration and Renters Policy and Scrutiny Committee

Date:	Tuesday 6 June 2023
Classification:	General Release
Title:	Retrofitting in Westminster
Report of:	Amy Jones, Director of Environment
Cabinet Member Portfolio	Cllr Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters
Wards Involved:	All
Policy Context:	Fairer Environment, Fairer Housing
Report Author and Contact Details:	Damian Hemmings dhemmings@westminster.gov.uk / Brendon Harper bharper@westminster.gov.uk

1. Executive Summary

This report provides an overview of the Council's activities to upscale retrofitting of buildings in Westminster, a key priority of our Climate Emergency Action Plan. This follows a high-level summary of Westminster's climate action programme provided to the committee in October 2022.

An update on the Council's social housing retrofit programme is provided under a separate cover.

2. Key Matters for the Committee's Consideration

The Committee is asked to consider and provide a view on:

- The range of activity taken to date in progressing retrofit activity across Westminster and how this may be accelerated, including navigating key challenges such as:

- The need to leverage significant funding to scale-up delivery of retrofit action.
- How best to raise awareness, support, and take-up of retrofit measures in Westminster communities.
- The opportunity to upskill residents to exploit retrofit employment opportunities and build the capacity required to deliver retrofit at scale.

3. Background

The Council declared a climate emergency in 2019 and set a target to reduce city-wide emissions to net zero by 2040. The Climate Emergency Action Plan (CEAP) adopted in November 2021 sets out nearly 70 council-led actions to support delivery of this target.

The plan identifies buildings as Westminster's largest emission source and the most significant challenge to overcome to successfully deliver our net zero 2040 ambitions. Collectively buildings are responsible for 86% of Westminster's emissions – 15% from the city's 121,000 homes and 71% from non-domestic buildings.

Emissions from buildings also represent the largest source of air pollution within Westminster, while poor building condition and energy performance are drivers of and exacerbate issues relating to fuel poverty, the cost-of living crisis and the health and wellbeing of communities. Delivery of the retrofit agenda therefore has the opportunity to deliver a wide range of co-benefits to Westminster communities.

The challenge of delivering retrofit across Westminster is considerable. While new developments are required to meet net zero emissions from their operations, most of the buildings that will exist in 2040 (our city-wide net zero target) are already built. On average these currently perform well below a net zero standard. Data from the Local Area Energy Plan work shows that 36% of office buildings in Westminster (the most common non-domestic building type) have an EPC rating of E or below. Meanwhile, for domestic stock, 16% of homes in Westminster have an EPC rating of E or below, and 73% are heated using fossil fuel (gas boilers).

The high-ambition decarbonisation pathway developed by consultants, Anthesis, which informed the CEAP, outlines significant energy-efficiency and clean energy improvements (retrofit) required in Westminster's buildings by 2040 including:

- Substantial fabric improvements (for example wall insulation and window glazing) to all categories of buildings, including to 72,000 homes, to substantially reduce their heating demand.
- Lighting, appliance and cooking upgrades to reduce energy demand and transition from gas to electric cooking.
- New low-carbon heating systems including a combination of decentralised systems and heat networks; and,

- Installation of local renewable energy generation capacity (primarily solar panels).

Beyond retrofitting our social housing estate and corporate property, the CEAP sets out roles for the council in retrofit including influencing and encouraging retrofit through planning and partnership.

While good progress has been made in the past 18 months, there are a number of challenges to delivering retrofit at the required pace and scale to achieve our net zero aims. These include:

- Funding
- Skills availability and industry capacity
- Compliance with strict heritage legislation
- Overcoming challenges with complex building ownership arrangements.
- Levels of general awareness and understanding of the benefits and process of building retrofit.

Through the Energy and Green Transition strand of the Future of Westminster commission, officers have sought expert views on how to further our work on retrofitting. Officers are awaiting the recommendation, due in the summer.

4. Recent and current activity

Significant progress has been made in the past 18 months to move forward the retrofit agenda in Westminster. This includes:

Cross-cutting activity

- Establishing a **Retrofit Taskforce** of industry experts and local stakeholders to identify solutions to key retrofit challenges faced in Westminster. External funding of £300,000 has recently been secured to support delivery of the Taskforce's priority workstreams for the next two years including:
    - Pilot retrofit projects to test boundaries of current policy and practice and inform policy and process improvements.
    - Development of building typology-based delivery approaches / procurement clubs.
    - A retrofit skills and training pilot; and,
    - A stewardship programme including online resource hub, bi-annual retrofit conferences and retrofit demonstrator home.

- Commissioning a **Local Area Energy Plan** which involves gathering extensive data on Westminster's energy system to model the changes needed to make the city's heating and power systems net zero by 2040. The plan will identify the most cost-effective pathway to net zero, including which buildings across the borough should be prioritised for improved insulation and for low-carbon technologies such as heat pumps and solar PV. This is due to be completed in late 2023.

Support for non-domestic retrofit

- Launching the **Sustainable City Charter** for owners and occupiers of non-domestic property across Westminster. Signatories agree to eight commitments including to work with other building stakeholders (e.g., tenants, managing agents etc) to create a plan to retrofit the building to achieve operational net zero emissions by 2040 or earlier. In return, Charter participants are offered a range of benefits, including access to exclusive knowledge-sharing events, access to a digital toolkit (under development), and priority participation in pilot retrofit projects offered through the Retrofit Taskforce. To date there are 24 full signatories to the Charter and a further 70 organisations have expressed interest in joining since the launch in November 2022.

- Launching the **Business Energy Saving Scheme** and **Climate Essentials for Business** pilot which support small and medium enterprises to identify retrofit measures.

- Allocating £1m of carbon offset funding to deliver carbon savings at WCC owned community buildings as part of the Corporate Property corporate energy efficiency (Refit) Programme. Works are underway to deliver these energy efficiency measures and are scheduled to be completed by the end of 2023/24.

- Utilising funding from Westminster's first Green Bond to support energy efficiency improvements in council-owned assets.

Support for home retrofit

- Introducing discounted pre-application advice for household retrofit measures including energy-efficient glazing, heat pumps and solar panels in March 2022. There has initially been relatively limited uptake of this, with 24 requests for discounted preapplication advice, most seeking advice on windows and double glazing. However, we are looking for ways to publicise this more widely including through the MEES programme and highlighting this as an option within retrofit how to guides.

- Publishing a series of '**retrofit how to guides'** to provide simple practical advice on retrofit measures commonly proposed in Westminster including window improvements and air source heat pumps Planning householder retrofit how-to guides | Westminster City Council

- Delivering a **Minimum Energy Efficiency Standard (MEES) enforcement pilot,** enforcing the minimum Energy Performance Certificate (EPC) standard of E**.** The Pilot resulted in 30 private rented homes being brought into compliance, saving 72.3 tonnes of CO2 per year.

- Launching the **MEES Plus Grant Pilot Scheme** offering targeted financial support to landlords to make energy efficiency improvements to private rented properties rated EPC E and lower. There has been a good level of interest with 17 properties currently shortlisted, however only one has completed a formal application to date and no associated works have been delivered yet.

- Delivering an award-winning **energy saving show home** in a retrofitted council home to demonstrate the process and benefits of home retrofit. Over 300 visitors attended the home and are now more likely to insulate, improve their windows and install solar panels. Lessons from the home are informing our council housing retrofit programme and development of advice and support to all other tenures.

- Soft-launched a '**Home energy savings hub'** on the Council website (www.westminster.gov.uk/home-energy-savings) outlining current advice and support available to households with information split by tenure type. Officers have now also begun exploring opportunities for a more effective information hub.

- Delivered **energy and fuel poverty advice** and support to vulnerable households via the **Green Doctors advice service**. Residents using the service receive either a telephone consultation or home visit, where they are given bespoke energy advice on how to reduce energy and water usage around the home. As of May 2023, a total of 261 Westminster residents have received support through the service.

- Promoting **Mayoral and government schemes** including the Warmer Homes Programme and Energy Company Obligation and Home Upgrade Grant schemes. Officers are engaging with the government's new Great British Insulation Scheme to maximise uptake and benefits for Westminster households.

4. Next steps

In addition to continued delivery of the activities above, the following next steps are planned to continue to build momentum on retrofit:

- Launch a webpage and call for Retrofit Pilot Expressions of Interest from stakeholders to deliver retrofit pilot projects with the **Retrofit Taskforce**.

- Secure additional capacity to support delivery on this agenda. This includes recruiting a **Senior Home Energy Officer** to co-ordinate and lead the design, development and management of fuel poverty and domestic energy efficiency support services, and a **Retrofit Innovation Officer** to co-ordinate and lead the Retrofit Taskforce's priority workstreams.

- Work with stakeholders, including community groups and social housing providers in **North Paddington**, to develop and deliver a tenure and landlord-

agnostic home energy savings programme to build demand for retrofit and triage to relevant support and delivery schemes.

- Adopt a **retrofit-first policy** for our City Plan that will place prioritisation on retrofitting and refurbishment of existing buildings in lieu of demolition for the purpose of making substantial embodied energy savings, reducing carbon emissions, and enhancing and conserving our existing building stock.

- Update the **Environment Supplementary Planning Document** (SPD) to provide more detailed guidance on retrofitting technologies and materials.

- Supporting and accelerating the delivery of community energy and decarbonisation projects, through better utilisation of the Council's **carbon offset fund**. This will include fast track delivery of carbon saving projects within the North Paddington community, as part of the wider North Paddington programme.

- Continued development of the **Sustainable City Charter** including development of exclusive events and toolkit for signatories and embedding of the Charter governance through a signatory-led Technical Working Group and Steering Group.

- Launching an energy-efficiency retrofit **grant scheme for SMEs** using carbon offset funding, which will be exclusively available to signatories of the Sustainable City Charter and/or businesses who have participated in the Business Energy Savings Scheme.

- Work with the Council's supply chain and training providers including Westminster Adult Education Services to understand **skills and training** requirements and develop and deliver training to support residents into retrofit jobs.

- **Engage residents** to inform the design and delivery of retrofit advice and support including via the Citizen's Climate Assembly.

- Improve our **insight and data** on non-Council retrofit delivery to better track progress towards net zero targets.

- Continue to embed retrofit across the Council's projects and BAU, maximising co-benefits including for fuel poverty, cost-of-living, air quality and public health agendas.

If you have any queries about this Report or wish to inspect any of the Background Papers, please contact Report Author Damian Hemmings dhemmings@westminster.gov.uk /

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BACKGROUND PAPERS

This section is for any background papers used to formulate the report or referred to in the body of the report.

High-Level Summary of Westminster's Climate Action Programme, October 2022

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Housing
Briefing Note

City of Westminster

Subject: Introduction to Westminster's Sustainability Retrofitting Programme – Policy & Scrutiny Committee

Date: 18th May 2023

Submitted by: Anthony Jones (Head of Housing Sustainability)

Approved by: Neil Wightman

Cc: Debbie Jackson

Introduction to Westminster's Sustainability Retrofitting programme.

Purpose of Briefing Note:

1.01 This briefing note provides:

- Short Background to retrofitting and Council objectives.
- A summary of the progress the council has made retrofitting its stock in order to meet its objective to get its homes to a Net Zero standard by 2040, including cost of programme.
- Success of the Energy Saving Show Home & future plans.
- Opportunities and Risks
- Next Steps

Background:

1.01 In this note, Retrofit broadly refers to any improvement work on an existing home to improve its energy efficiency, making it easier to heat, able to retain that heat for longer, and replacing fossil fuel use with renewable energy.

1.02 The Council declared a climate emergency in 2019 and set a target to reduce city-wide emissions to net zero by 2040. The Climate Emergency Action Plan (CEAP) adopted in November 2021 sets out nearly 70 council-led actions to support delivery of this target. This target was re-affirmed in the Council's Fairer Westminster Strategy in 2022.

1.03 Extract from Fairer Westminster Action plan 2023/24 highlighting main areas of focus for retrofitting the council's Social Homes:

- Work to improve the Pimlico District Heating Undertaking's performance and reduce its carbon footprint.
- Renovate council homes to help lower our tenants' energy bills, improve their homes' energy efficiency, and reduce carbon emissions.
- Continue the journey of switching to sustainable heat sources across our Council buildings and housing stock.

Council retrofitting Progress:

1.04 Recruitment of the Sustainability Team tasked to deliver a net zero programme of works began in 2022 and almost completed with 7 posts filled. An Environmental Programme Manager has been advertised in May 2023 and 2 sustainability officers to be advertised in June 2023.

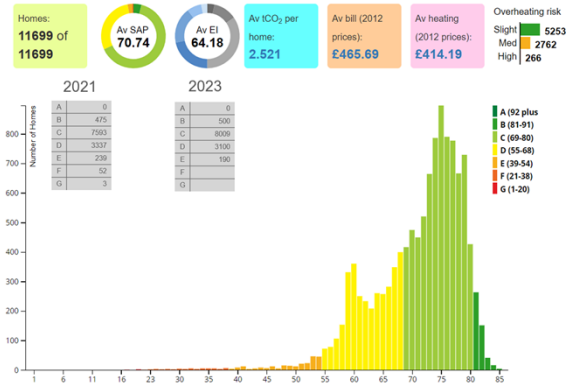
1.05 In 2020 through to 2021 the Council worked with its London Council colleagues and created a pan London retrofit action plan in July 2021. The Plan was agreed by the Director of Housing and Cabinet Member (CM) for Housing in September 2021. This is attached as **appendix 1.** The Plan can be summarised as reduce heating demand and then electrify heating via 'whole home' retrofits – installing additional insulation (inc. windows) / low carbon heating / energy generation.

1.06 The definition of Net Zero in the context of retrofitting has been defined as:

1. Essential - Home is heated by non-fossil fuel source.
2. Desirable – As per the Pan London agreed action plan, we have aimed for a 'sweet spot' in terms of a space heating demand of 65 kWhr/m2.yr on average as a way of optimising risk and cost. It is envisaged there will be a range of between 20-120 kWhr/m2/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.

1.07 During 2021 the Council implemented a full SAP (Standard Assessment Procedure) modelling tool to benchmark our current position on Carbon Emissions, SAP ratings, progress to Net Zero etc for the c.11,700 Council managed social homes. The results of this modelling are shown below:

Housing Carbon and Energy efficiency modelling results 2021



Heating fuel	
Communal Gas	33%
Individual Gas	55%
Electric systems	12%

PV panels	% of stock	Total System size
Installed on 57 Blocks	9%	446 Kwp

Double Glazing	% of stock
Double Glazed	61%

Wall Insulation	% of stock
Insulated	44%

Conservation	% of stock
Listed	15%
Conservation Area	44%

Total carbon produced by WCC managed social rented stock is just under **30,000 pa**

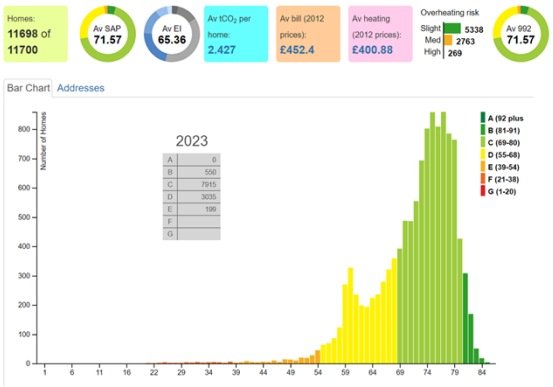
1.08 Retrofit assessments and works are now completed on all voids to bring homes up to at least an EPC (Energy Performance Certificate) C but with the aim to bring them up as close to EPC B as practical.

1.09 £3.3m SHDF (Social Housing Decarbonisation Fund) Wave 1 funding and £800k of Local Authority Delivered (LAD) green homes grant funding secured to help fund a £7m retrofit programme which has delivered over 400 retrofits in the last 12 months and over 500 since start of programme in 2021. Savings to resident's fuel bills from these works are estimated to be £65,000 per year. (Circa £150 per home based on pre-energy crisis costs) and over 250 tonnes of carbon a year. Measures being installed are primarily fabric improvements such as wall, floor and loft insulation and secondary glazing, with some electric heating systems.

1.10 Wave 2.1 funding bid of £4.8m received to fund a programme of over £9.6m to retrofit 560 homes to start in Summer 2023 and finish in September 2025. Outcomes of this programme are estimated to be over £90,000 of total savings to resident's fuel bills per year and over 380 tonnes of carbon per year. Measures being installed are primarily Fabric improvements such are wall, floor and loft insulation and secondary Glazing, with some electric heating systems and Solar PV installations. Approx 45% of these homes will come from void properties.

1.11 Modelling following retrofit works:

Housing Carbon and Energy efficiency modelling results 2023



Heating fuel	
Communal Gas	33%
Individual Gas	55%
Electric systems	12%

PV panels	% of stock	Total System size
Installed on 57 Blocks	9%	From 446 Kwp to 752Kwp

Double Glazing	% of stock
Double Glazed	From 61% to 63%

Wall Insulation	% of stock
Insulated	From 44% to 48%

Conservation	% of stock
Listed	15%
Conservation Area	44%

Total carbon produced by WCC managed social rented stock is just under **29,500 pa**

1.12 As well as producing these current performance measurements, the parity projects full SAP modelling tool was able to create a programme to get as close to a SAP B as possible and then a Net Zero standard. This work projected a cost of over £213m and assumed 100% take-up of measures from Residents. Some sensitivities were run on this programme to model if 70% and 50% take-up was achieved. These results are shown in Appendix 2.

A breakdown of the £213m cost is shown below:

Efficient Buildings

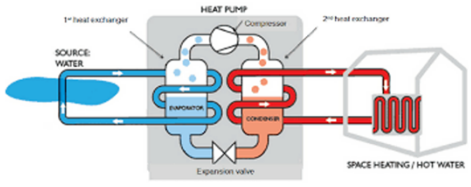
Measure	No.	*Est Cost
Entrance Doors	4,000	£8m
Floor insulation	3,000	£10m
Windows (not incl planned replacements)	3,000	£15m
Draught proofing	3,500	£3m
Roof insulation		£1m
Wall insulation	6,000	£66m
Total		**£103m**

*Based on previous costs for similar works
Retrofitting to PAS 2035 (new retrofit standard) will cost more

Clean & affordable energy

Measure	No.	*Est Cost
Heating Controls	4,200	£4m
Heat pumps/electric heating	7,000	£50m
Communal heating (reduced Gas)	3,000+	£40m
PV panels		£15m
Total		**£109m**

*Based on limited previous costs for similar works
Many unknown variables: • are existing radiators large enough? • is there space for heat pump? • Will resident accept the heating changes? • Will planning permission be given?



1.13 It should be noted that there is a reasonable level of confidence in the costs for fabric improvements (listed under Efficient Homes) as we have been completed these works for a number of years, however the clean & affordable energy costs are much more difficult to estimate as emerging technologies are required as part of our programme to electric our heating and we have many additional challenges due to the nature of WCC (Westminster City Council) homes. i.e., Heritage, limited space, build form.

1.14 Full scale roll out of electric heating has several challenges that need to be overcome, including:

- Electricity prices are 3 times the cost of Gas currently. 12 months ago this was up to 5 times. To ensure our residents are not paying more for heating a system that is currently 3 times more efficient than individual gas boilers is required. Heat pumps are the primary solution that claims to achieve this, however as the Councils social homes are primarily flats with limited external areas available for such systems, it is not likely to be feasible to install in many homes.
- Consultation required with residents to find suitable solutions that residents will be comfortable using and we need their support to allow this change.
- Feasibility studies required on 50 Communal heating systems.
- Heritage consultation required in up to 50% of homes.
- Modern technologies (i.e., infra-red heating) are yet to be adopted in approved energy modelling systems (such as SAP used in EPCS).
- Unless a heat pump is used the EPC score will get significantly worse.
- Skill shortage in maintaining these systems.

Over 20 pilots of electrical heating installations have been completed. The installations include an Air Source Heat Pump, electric boilers, and High Retention Storage Heaters. Further pilots of Infra heating systems and other storage heater solutions are planned. The goal of these pilots is to understand energy cost, ease of use and install cost.

1.15 Presentations and workshops have bene held with stake holders including London Councils, GLA (Greater London Authority), WAES (Westminster Adult Education Service), DESNEZ (formerly BEIS (Business, Energy, and Industrial Strategy)), thinktanks, Contractors (WCC and others) to explore solutions to the skills shortage in retrofit.

1.16 Client briefs and project signoffs now include the Head of Sustainability and Major works are now assessed for opportunities to include retrofit or other sustainability works at the concept stage of project development. A assessment of current Major works projects was completed and any projects that were not too far progressed were assessed and works added.

1.17 An example of retrofit work being included in a major works project is in Avenue Gardens – 200kwp of Solar PV to be integrated with the existing major works scheme to replace roofs on the Estate.

1.18 The picture below shows the PV panels recently completed on the Warwick Estate. The total number of Solar Panels totals 306Kwp and is likely to be the largest roof top installation of Solar PV in a single Social Housing Estate. The scheme alone has increased the Solar Capacity on our Social Homes by 70% (306Kwp added to 446Kwp).

1.19 All new roof replacement schemes now include an assessment for the potential to include Solar PV panels.

1.20 PDHU (Pimlico District Heating undertaking) serves over 3,300 homes and 50 commercial units. A review of improving this system is underway, a strategic outline case has been approved to develop a outline business case for investment to secure its future. Opportunity will be taken to investigate low carbon sources such as a water source heat pump utilising water from the Thames.

1.21 Similar options appraisals for low carbon heating sources are being undertaken when our other 50+ communal heating systems are due for replacement.

1.22 Oldbury House and Sheringham House are being studied to investigate alternatives to heating via individual gas boilers and will inform a larger programme of feasibility studies.

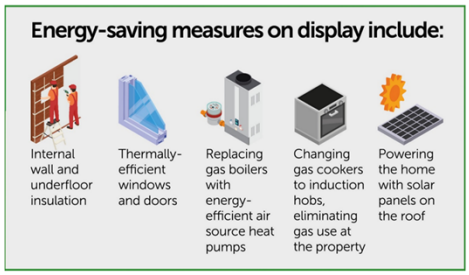
1.23 Engagement with local Cllrs has improved resident take up in areas with high proportions of low EPC homes such as the North Westminster Area. Articles in Ward Cllr's communications and local parish council involvement led to a number of resident referrals. In addition, moving from a contractor led communication strategy to an initial WCC officer led approach using the new resources in the sustainability team improved resident uptake from Circa 20% to 45%. Primary reasons for refusing works are disruption to the residents home and loss of wall space due to the internal wall insulation (up to 10cm on external facing wall).

1.24 A resident focus group is being recruited that will help improve tenant engagement strategies and selection of suitable retrofit technologies.

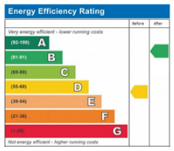
Energy Saving Show Home (ESSH)

1.25 The ESSH in Bravington Road opened in 2022 and was used to show residents measures we will install to encourage uptake. Climate emergency team helped to take this further, and we hosted tours for private landlords and other Councils to share learning. Won a NHMF (National Housing Maintenance Forum) Award and has been shortlisted for the unlock Net zero awards at the National Housing Conference.

Retrofitted one-bedroom void unit

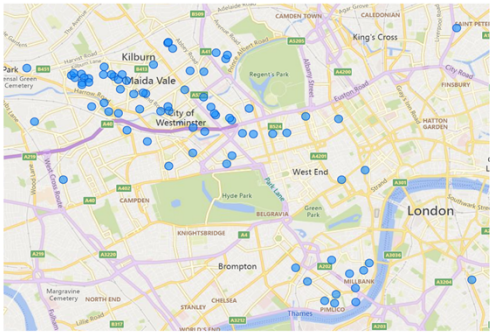


- ✓ Energy demand for heating reduced by 55%
- ✓ EPC rating increased from low D to high B
- ✓ Expected to be self-sufficient for energy



Over 300 visitors

- 118 on public tours, 45 x 1:1 tours for WCC tenants, 120 WCC staff/ contractors and 20 from other boroughs.
- Public tours well attended by owner occupiers (73%) and residents from the north of the borough:



Positive feedback and insight

- Average 4.5 out of 5 rating
- Attendees are now more likely to insulate, undertake window improvements, install solar PV.
- Attendees included other councils, WCC tenants, leaseholders, private tenants, HAs, WCC employees.
- High demand for additional advice & support:
  - Clearer information on planning requirements
  - Trusted advice (home surveys and bespoke retrofit plans)
  - Trusted suppliers
  - Financial support
- Legacy: video and PDF case study
- Next steps:
  - Let property and undertake 12 month monitoring
  - Planning for a future show home in South/Central Westminster

"It was enormously helpful - in 10 minutes I could see and understand the improvements and the technology, which would have taken me several hours of research on the internet." **Susan, Little Venice resident**

1.26 A video of the ESSH has been created which will allow residents to learn about the retrofit measures being installed and considered by the Council online. A case study has also been produced to ensure the lessons learnt are kept and available.

1.27 A second ESSH is being considered in the Central and South areas which will showcase and explore different types of retrofit measures, such as infra-red heating and new insulation systems.

Risks and Opportunities

1.28

Risk/opportunity	Details	Action
Resident take up and leaseholder recharge	Decent homes - take up - circa 75%. Internal wall insulation take up - circa. 20%.	Resident engagement strategy, cost benefit analysis & Grants
Measures not performing as expected	Example is Air source heat pumps – currently no retrofitted heat pumps in stock.	Feasibilities and Pilots
Existing radiators not compatible.	Existing radiators may being compatible with Heat pumps and require replacement.	Feasibilities and Pilots
Measures not being possible/practical or large variance in cost V Budget	It is likely some studies of PV, double & triple glazed windows, particularly in Listed buildings will prove unviable.	Update Modelling and stakeholder engagement
Changes to SAP	Future adjustments will be made to SAP.	Subscribe to relevant organisations and remodel as required
New technology	New technology may be accepted by SAP in the future that is more viable/effective.	
Regeneration	Regeneration could save expenditure and improve carbon reduction if new build standard is high enough.	In hand with development Team
Fuel Bills increasing	Electrically heated properties have the potential to have higher running costs if not used effectively.	Resident engagement, Training, monitoring devices.
Very diverse number of archetypes	WCC use almost 400 beacons to value our housing stock, this gives an idea of the amount of studies and pilots that could be necessary	Consultant support
Lease and heat provisions	If communal heating system cannot be retrofitted sufficiently, moving to individual systems would require variations to leases.	Review following communal system feasibilities

Next Steps

1.29

Description	Benefits to residents and the Council	Target delivery date
Produce and then publish a programme for each WCC managed block	Residents will know what the road map to net zero is for their home	April 2024
Build upon the modelling that details what is required to get to a Net Zero standard and produce a forecast programme to achieve Net Zero by 2040	Stakeholders will be aware of challenges and future plans the Councils has to achieve Net Zero and better equipped to respond to new challenges.	Mar 2024
Work with resident focus groups to shape resident engagement and plan to help achieve Net Zero	Increased take up of measures, better cost of living outcomes for residents and lower carbon emissions.	Oct 2023
Produce an outline decarbonisation plan for WCC's 50+ communal systems and complete appraisals for the systems requiring replacement in the next 5 years.	Council will be able to forecast what carbon emissions are likely to require offsetting and how this will be achieved. Major works can be delivered quicker if low carbon solution already identified before system requires replacement.	Mar 2024

Complete a Photo Voltaic (PV) strategy and assessment of rooftop potential on social housing and explore innovative partnerships/ technologies to get best use of expanding solar capacity.	Better economic returns on investment allowing increased spend on renewables.	Mar 2024
Assess ever new major works programme for retrofit work opportunities.	Less disruption for residents in their homes.	On going
Produce a policy document that sets out the Council's approach to getting its social homes to a Net Zero Standard.	Residents & stakeholders will be better informed of Council policy in this area and be able to provide constructive criticism as well as direct support. Government agencies could use this to lobby for changes that could accelerate delivery.	Sept 2023
Complete further pilots of non-fossil fuel heating systems, review, learn and then consult with resident groups on findings.	Data on more solutions can ensure the right systems are chosen for install and residents are not left in a worse position than current situation.	Ongoing
Deliver a second Show home in Central Westminster.	More residents can find out what measures they can install in their homes when retrofitting.	October 2023
Start consultation on an estate wide heritage agreement in order to complete Retrofit measures in some listed estates.	When listed homes become vacant, retrofit measures could be installed in good time, rather than wait for consent to be provided.	Mar 2024

Appendix 1.

London Councils agreed Retrofit Action plan.

Attached separately due to size.

Appendix 2.

Investment requirements & outcomes & sensitivities on resident take up.

Investment outcomes:

Balanced CASE Min SAP B - zero carbon

Homes Affected Missing Target: **11,048**

	Homes Affected	Homes Considered	Complete Stock
Homes	**11698**	**11699**	**11699**
Mean SAP	**79.10 C** *(+8.11)*	**79.10 C** *(+8.11)*	**79.10 C** *(+8.11)*
Mean EI	**82.10 B** *(+17.57)*	**82.10 B** *(+17.57)*	**82.10 B** *(+17.57)*
Mean Fuel Bills	£335.97 *(-125.94)*	£335.97 *(-125.930)*	£335.97 *(-125.93)*
Mean Fuel Bill (realistic)	£388.1 *(-105.59)*	£388.09 *(-105.58)*	£388.09 *(-105.58)*
Mean tCO_2	1.228 *(-1.265)*	1.228 *(-1.265)*	1.228 *(-1.265)*
Mean 2017 tCO_2	0.859 *(-1.058)*	0.859 *(-1.058)*	0.859 *(-1.058)*
Mean 2019 tCO_2	0.588 *(-1.235)*	0.588 *(-1.235)*	0.588 *(-1.235)*
Mean 2025 tCO_2	0.286 *(-1.353)*	0.285 *(-1.353)*	0.285 *(-1.353)*
Mean 2030 tCO_2	0.241 *(-1.380)*	0.241 *(-1.380)*	0.241 *(-1.380)*
Mean 2038 tCO_2	0.157 *(-1.430)*	0.157 *(-1.430)*	0.157 *(-1.430)*
Mean 2050 tCO_2	0.131 *(-1.446)*	0.130 *(-1.446)*	0.130 *(-1.446)*
Mean Heating Bill	£296.99 *(-113.40)*	£296.99 *(-113.40)*	£296.99 *(-113.40)*
Mean TThreshold	21.76°C *(slight)* *(+0.51)*	21.76°C *(slight)* *(+0.51)*	21.76°C *(slight)* *(+0.51)*
Mean kWh per M2	53.87 *(-88.500)*	53.87 *(-88.490)*	53.87 *(-88.490)*
kWh	2,867.47 *(-5004.290)*	2,867.23 *(-5003.860)*	2,867.23 *(-5003.860)*

Sensitivities

Minimum SAP B then Zero Carbon

	Takeup			*Change from 2021*		
Estimates	**100%**	**70%**	**50%**	***100%***	***70%***	***50%***
Mean SAP	83	79.3	76.9	*12.3*	*8.6*	*6.1*
Meant EI	85	78.8	74.6	*20.8*	*14.6*	*10.4*
tCo2	0.8	1.3	1.7	*-1.8*	*-1.2*	*-0.9*
tCo2 total	9,360	15,503	19,598	*N/A*	*N/A*	*N/A*
2038 tCo2	0.2	0.7	1.0	*-1.6*	*-1.1*	*-0.8*
2038 tCo2 total	2,340	7,921	11,642	*-92.2%*	*-73.6%*	*-61.2%*
2050 tCo2 total	1,500	5,550	11,385	*-95.0%*	*-81.5%*	*-62.1%*

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LONDON COUNCILS





Retrofit London Housing Action Plan

July 2021 | Rev N

Etude ELEMENTA RAFT RETROFIT ACTION FOR TOMORROW

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.

LONDON COUNCILS

Contents

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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[1], 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.

[1] *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

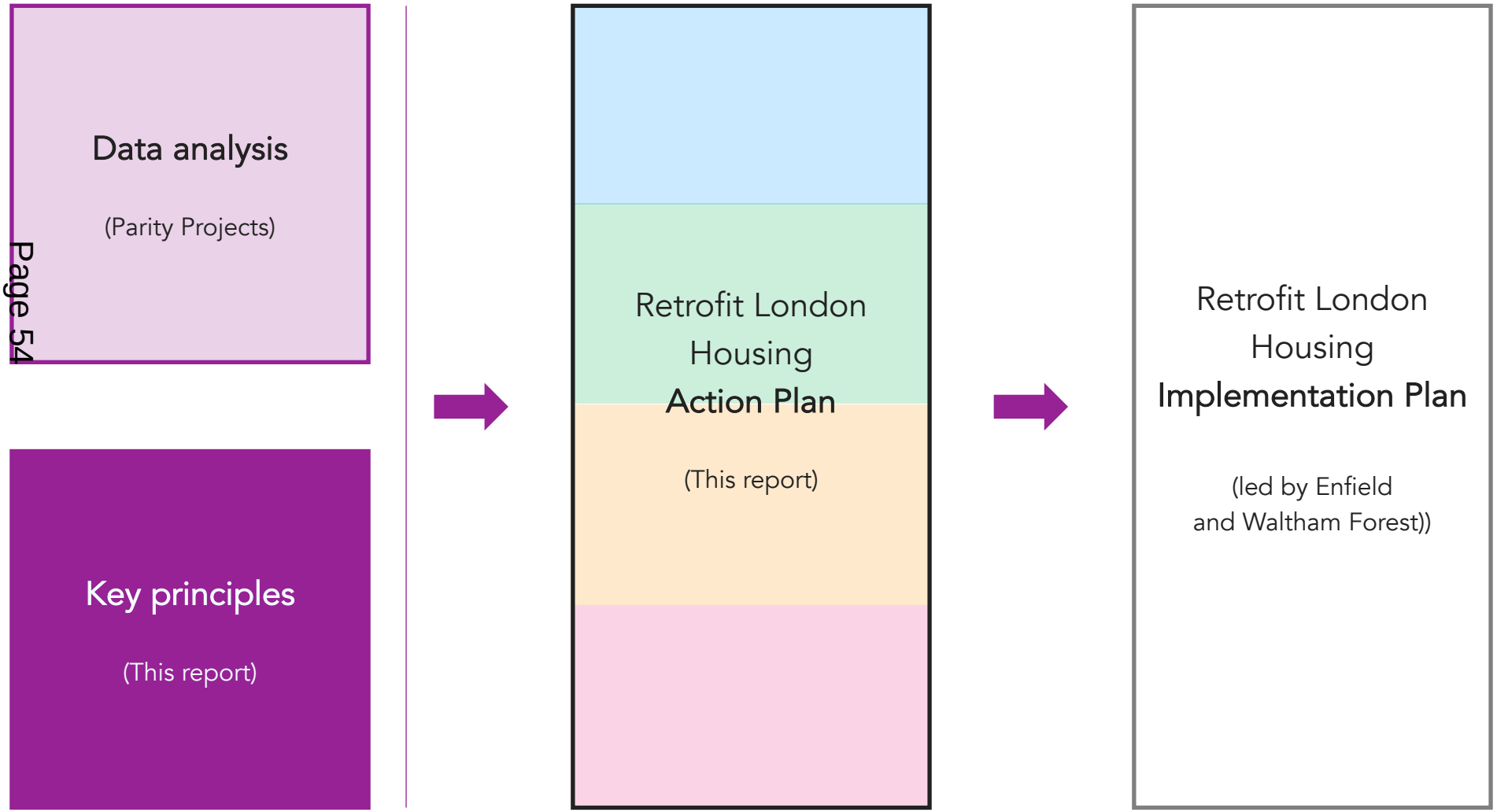
- The costs of retrofit are high and the financial benefits can be unclear and uncertain.
- Energy cost savings are generally not a sufficient motivation.
- Running costs of heat pumps (including maintenance) are perceived as a concern.
- Application for grant funding is complex and uncertain.
- Procuring 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

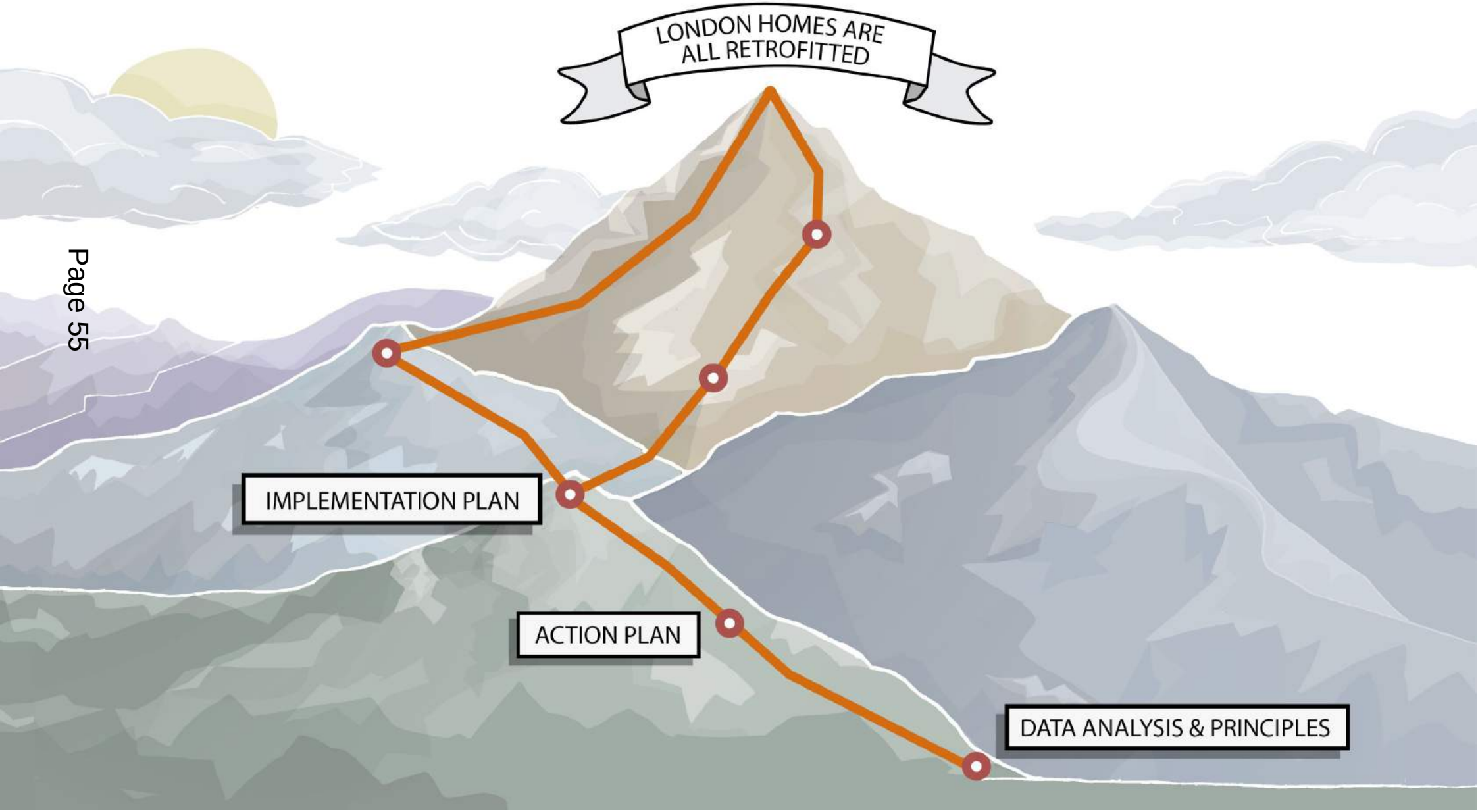
This project is part of a wider process to develop the Retrofit London programme.
It has been informed by Parity Projects' data analysis summarised in the *London Councils: Pathways Report,* and includes some extracts of their analysis.
It will form the basis of the Implementation Plan which will be 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

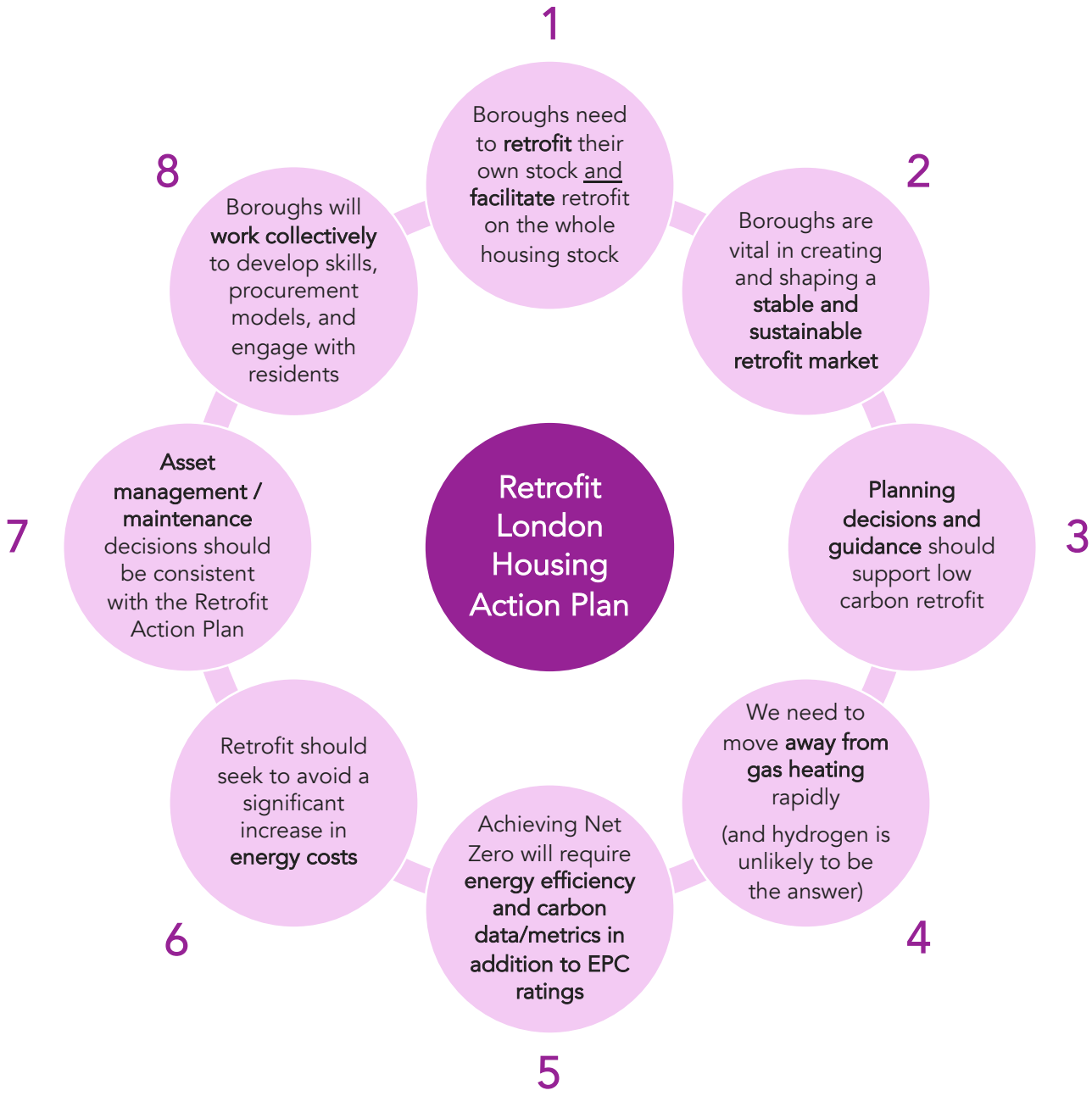
Facing in the same direction

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

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 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:

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#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 $kgCO_2$ (for carbon), $kWh/m^2/yr$ (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_2 emissions at current (2017) levels, its entire carbon budget would be used **by 2027**. Total CO_2 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 $MtCO_2$

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_2 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_2 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

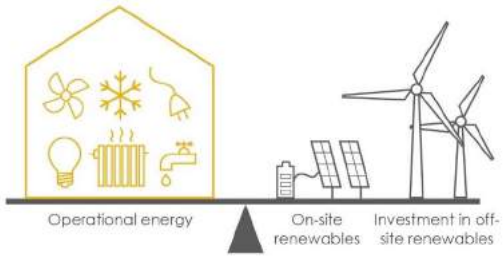
Where possible, Net Zero operational carbon should be achieved on-site. This means that the total renewable energy generated on-site (e.g. through Solar PV) meets or exceeds the energy required by the building.

- 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[1].

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.

[1] *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.*



Net zero operational balance

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	**Low space heating demand** e.g. kWh/m²/yr space heating demand
2	**Low total energy use** e.g. kWh/m²/yr Energy Use Intensity (EUI)
3	**Low carbon heat (no fossil fuels)** e.g. $kgCO_2/m^2/yr$ for heating system average for 2021-2050
4a	**Maximise renewable energy generation on-site** e.g. kWh solar energy generation/$m^2_{building\ footprint}$/yr
4b	**Maximise local renewable energy generation** e.g. kWh in the borough
5	**Energy flexibility** e.g. Smart Readiness Indicator or kWh/m²/ energy storage
6	**Reduced performance gap**

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

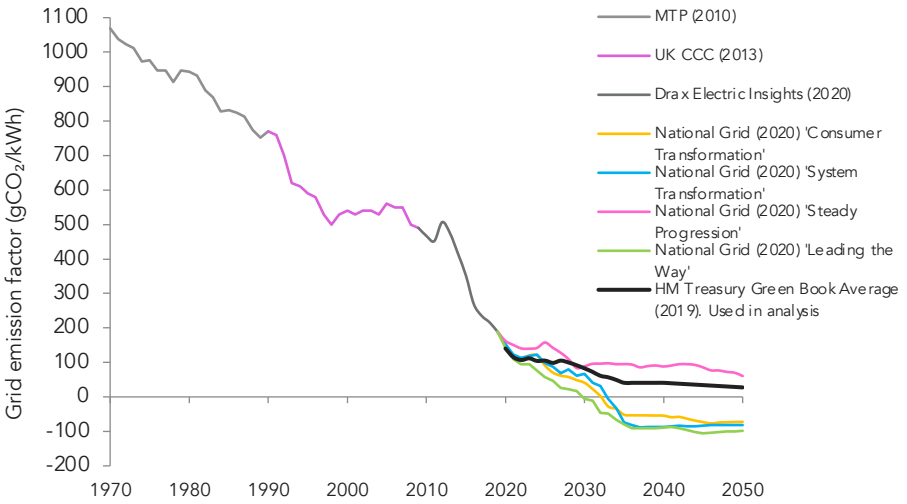
The carbon content of electricity has fallen over the last few years. It is now three times less than 10 years ago and already lower than natural gas. It is forecasted to continue to reduce even further in the next 20-30 years. This explains the current energy revolution and the very likely electrification 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.

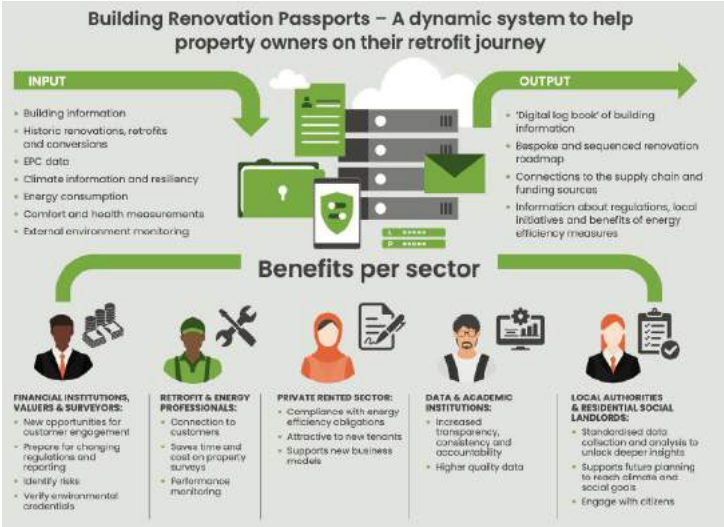
The current disparity in cost between gas and electricity is an issue and is discussed in more detail in this report.

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

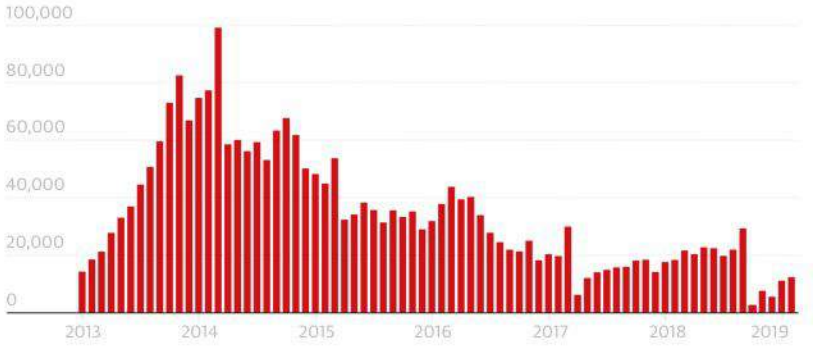
What is currently happening with home retrofit in London, and why it is not enough

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.

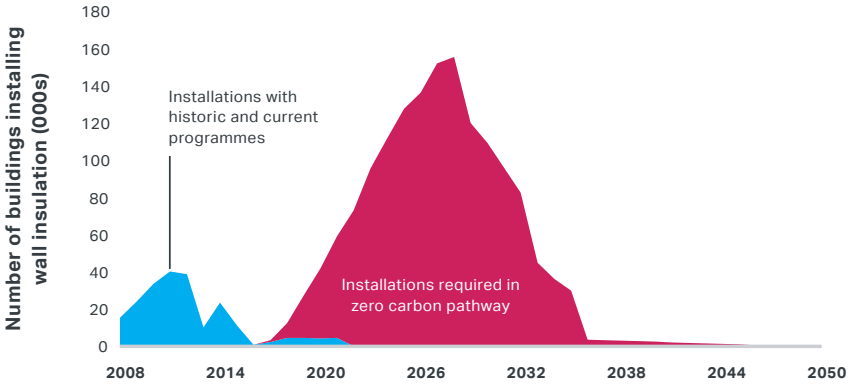


The number of energy efficiency measures installed nationally is very low and has been declining (right - © The Guardian, using BEIS data).

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.



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.

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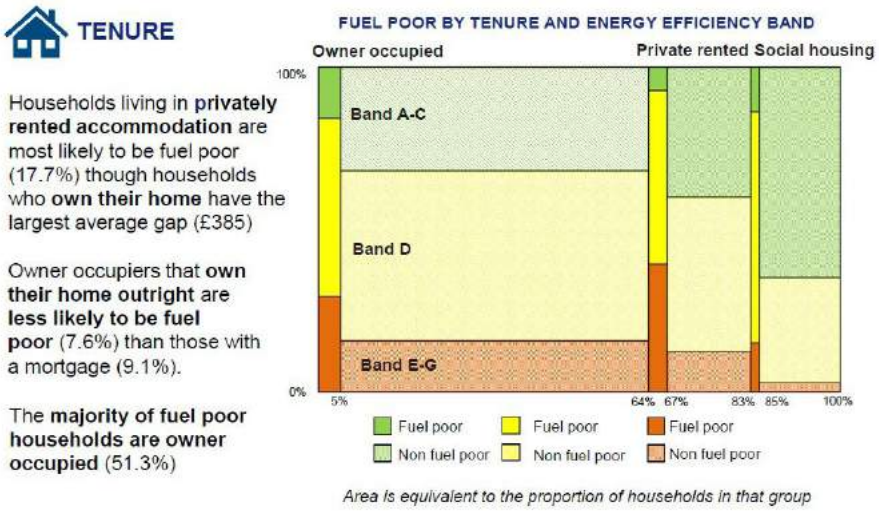
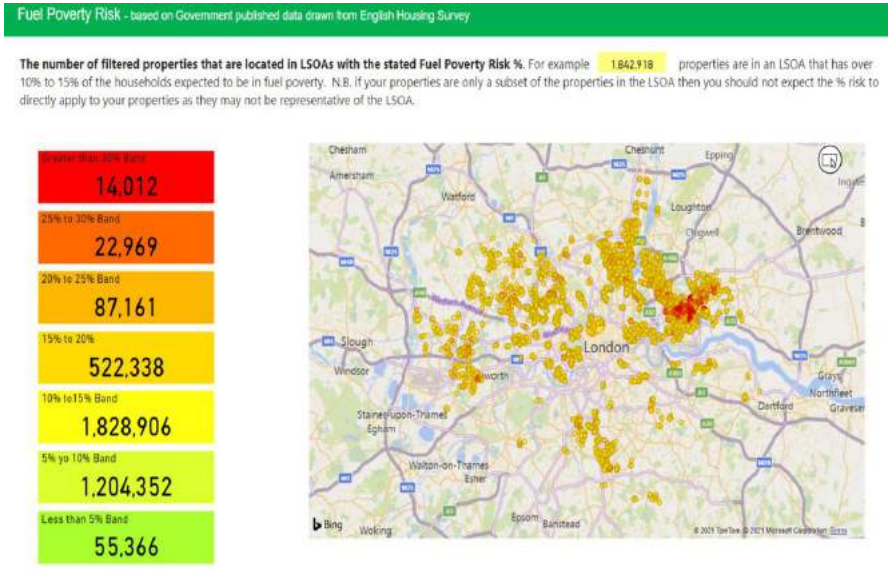


Fuel Poverty in the UK affects all tenure groups.

(Source: BEIS Fuel Poverty Factsheet 2020 (2018 data))



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_2. 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.

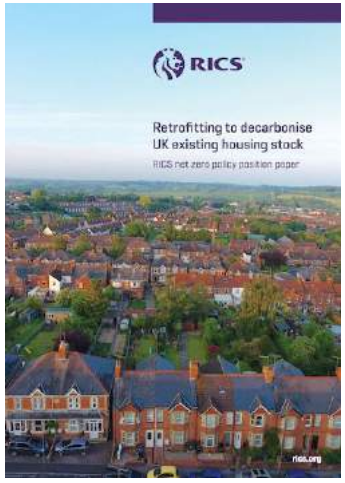
Demonstrator projects

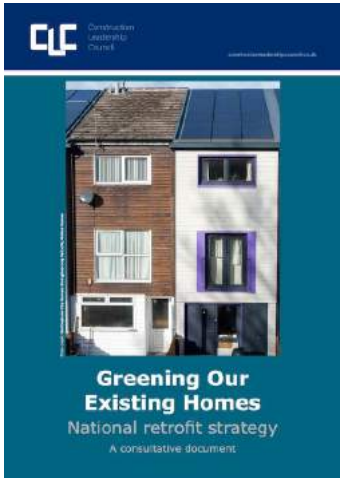
- **Houses:** Brent, Enfield, Lewisham, Newham, Richmond , Sutton, Wandsworth, Waltham Forest
- **Blocks of flats:** City of London, Enfield, Greenwich, Hackney, Haringey, Kensington & Chelsea, Redbridge, Richmond & Wandsworth, Sutton

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

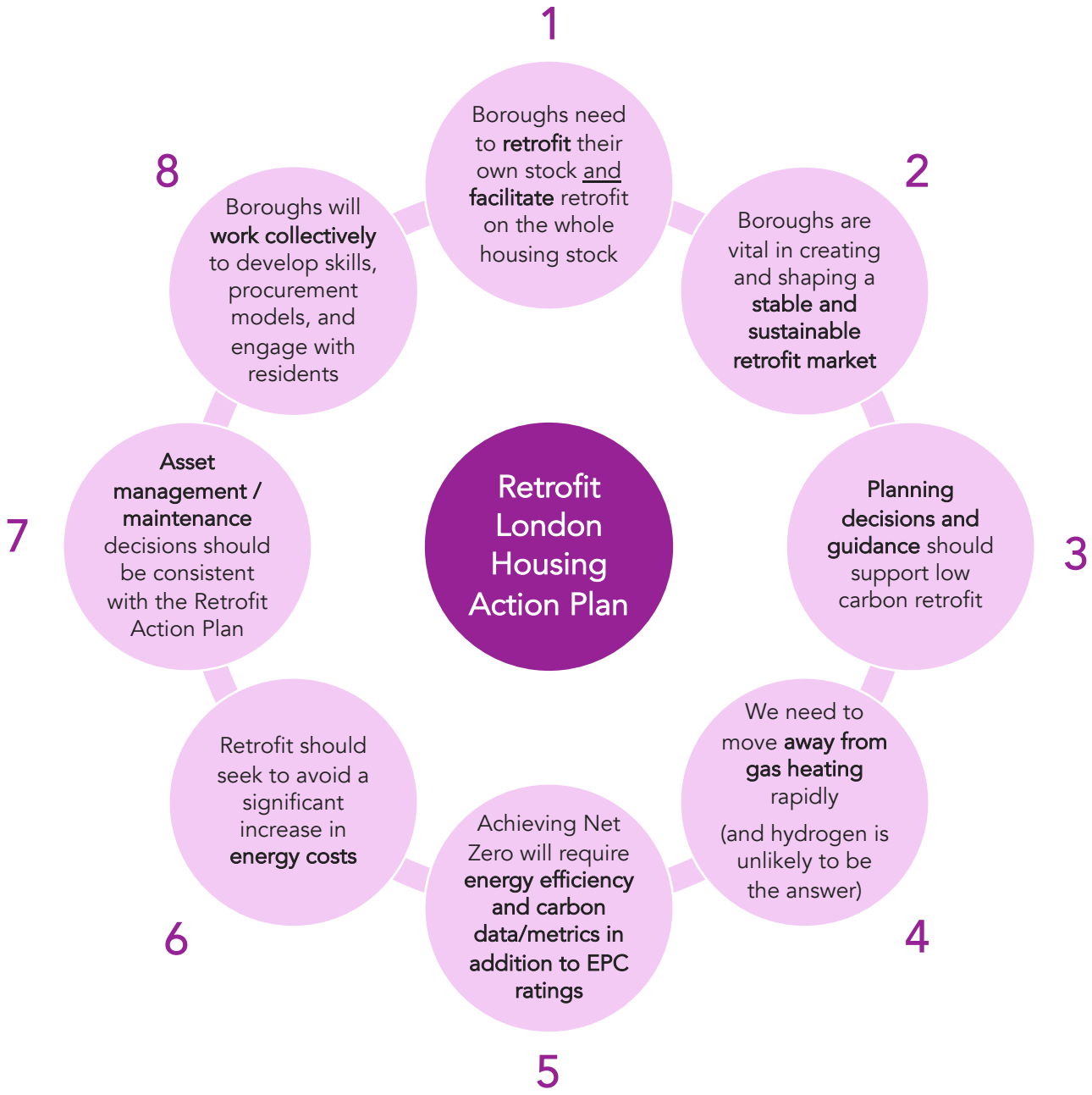
Facing in the same direction

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.

Each of them is explained on the following pages.



1 Boroughs need to act on their own stock and facilitate retrofit on the whole housing stock

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

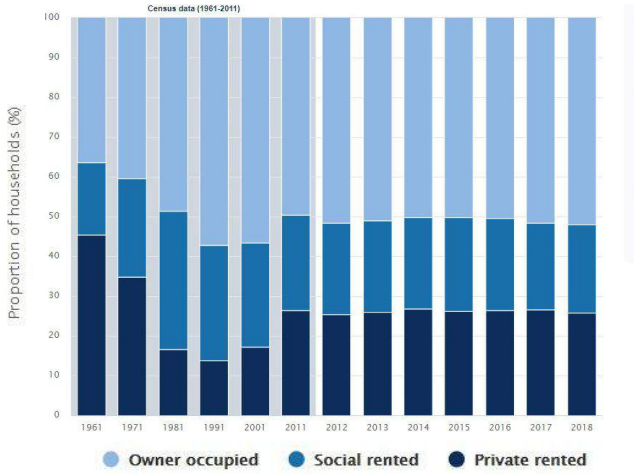
The owner occupier sector represents just over half of all homes in London. It is a very fragmented and diverse sector which include both pioneers and people with little desire or means to improve their homes. Retrofit should be seen in the context of a very large home improvement market though, with 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

3 Planning decisions and guidance should support low carbon retrofit

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.

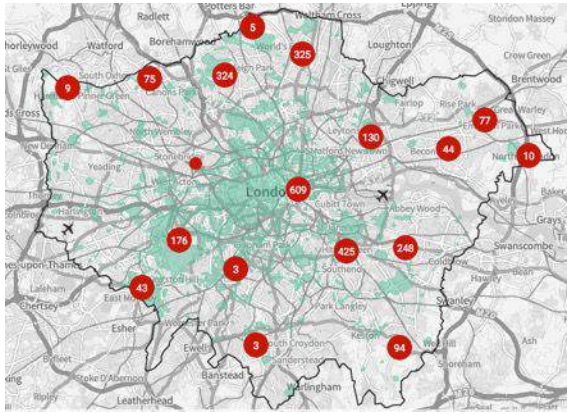
Conservation of heritage and the planet

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

4 We need to move away from gas heating

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.

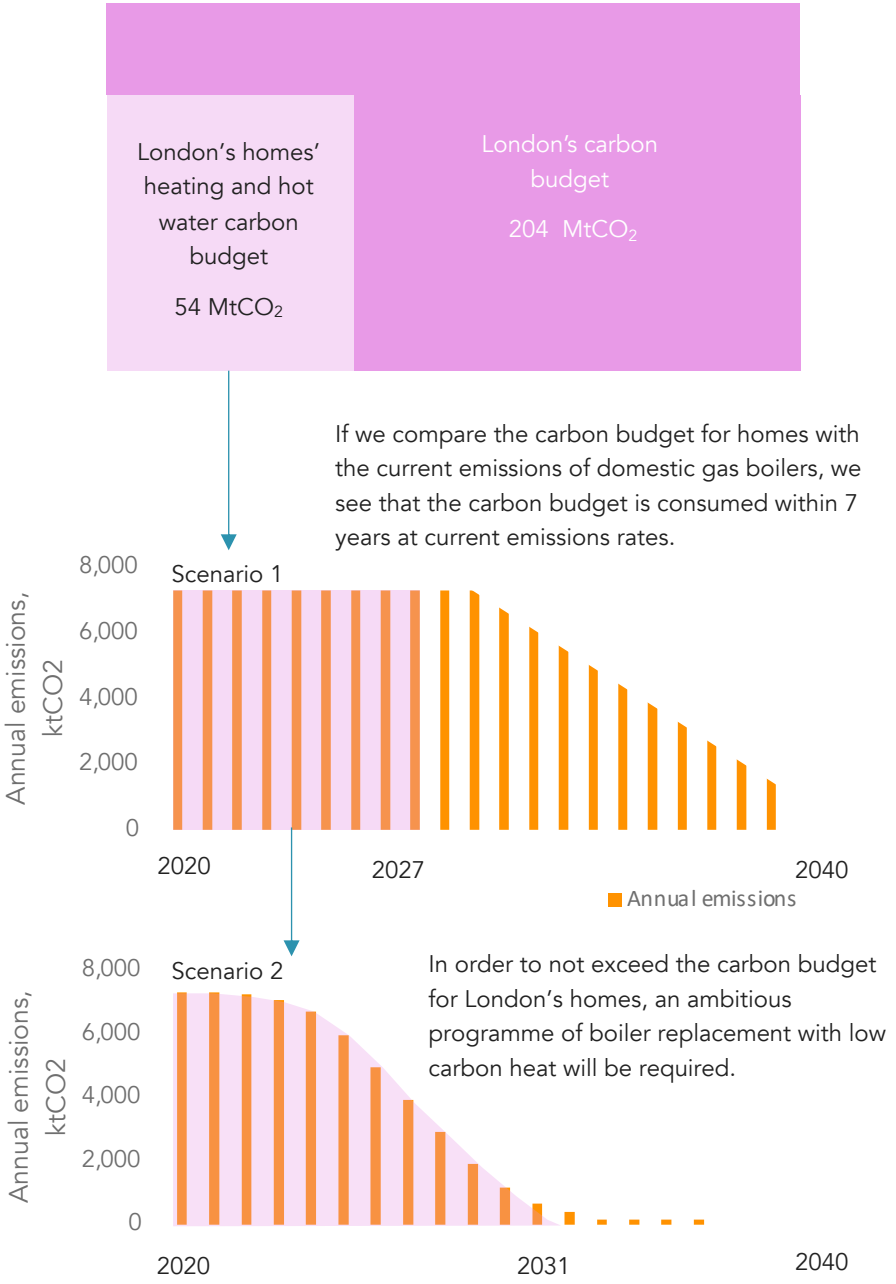
If we are also to meet our obligations under the Paris Agreement in limiting global temperature rises to no more than 2°C, a carbon budget approach helps to understand the impacts of the pace of change between now and 2050. They take into account the effect of cumulative CO_2 emissions in the atmosphere. 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 $MtCO_2$, 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 $MtCO_2$. 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 $MtCO_2$. The graphs on the right show annual emissions in orange, and cumulative emissions equal to 54$MtCO_2$ 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

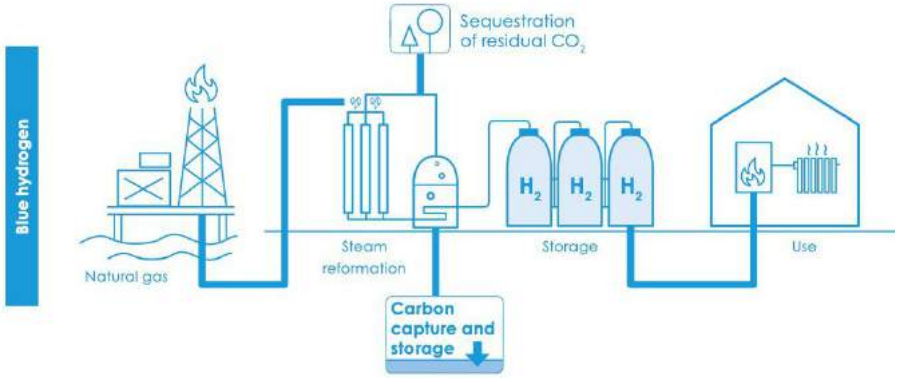
Hydrogen is currently produced via four methods, three of which require a fossil fuel feedstock to create ‘blue hydrogen’ with inherently high emissions. Carbon capture and storage (CCS) is therefore required to reduce emissions (60-85% relative to using natural gas) but economically viable CCS at scale for this purpose is unproven.

Heat pumps are 5 times more efficient than ‘Green hydrogen’

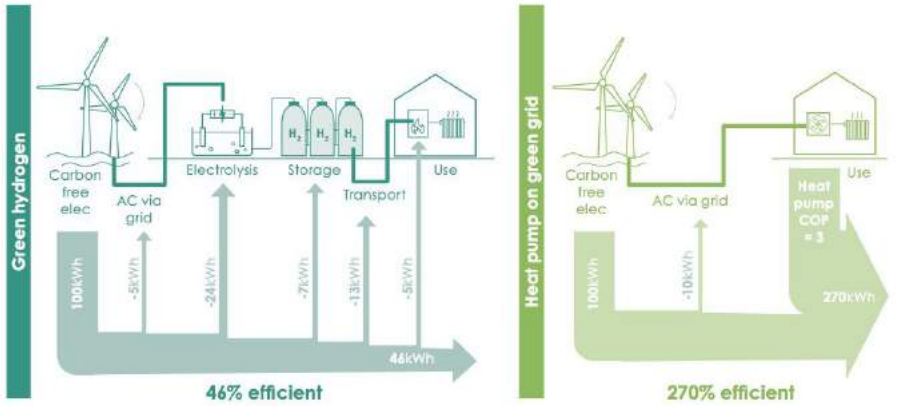
‘Green hydrogen’, produced via electrolysis powered by very low carbon sources of electricity such as renewables and nuclear, offers a more plausible route to create genuinely low carbon hydrogen. However, it is more efficient to use electricity directly for heating and hot water instead of turning it 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)

5 Achieving Net Zero will require energy efficiency and carbon data/metrics in addition to EPC ratings

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.

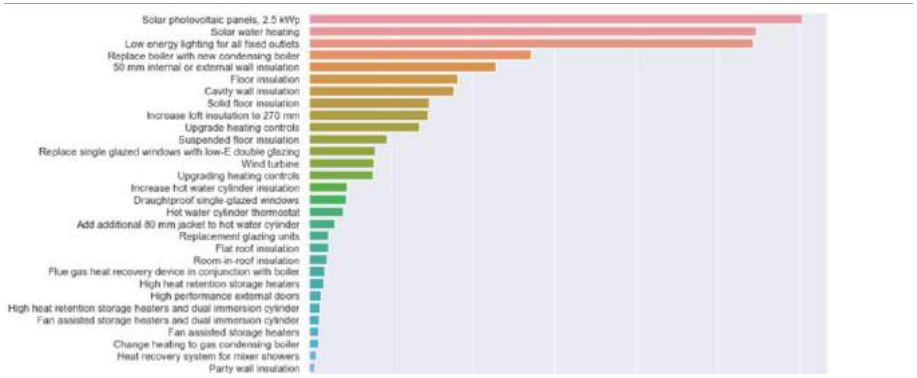
We recommend the following additional metrics

These metrics are already collected and/or can be readily calculated:

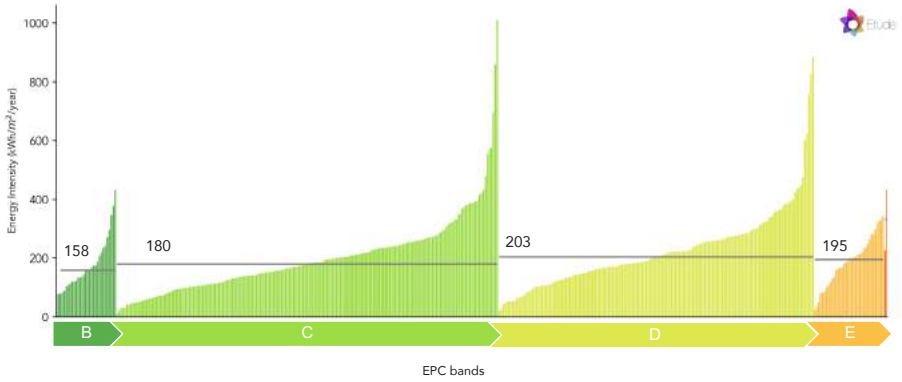
Carbon emissions in $kgCO_2/m^2/yr$. If Net Zero carbon is a key objective, a carbon indicator is required which takes into account the carbon impact of all home energy uses and the need to transition away from gas and other fossil fuels. This should be based on long-term carbon factors (e.g. 2038).

Space heating demand in $kWh/m^2/yr$. 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 $kWh/m^2/yr$. 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/m²/yr, which is very high.*

6 Retrofit should seek to avoid a significant increase in energy costs

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.

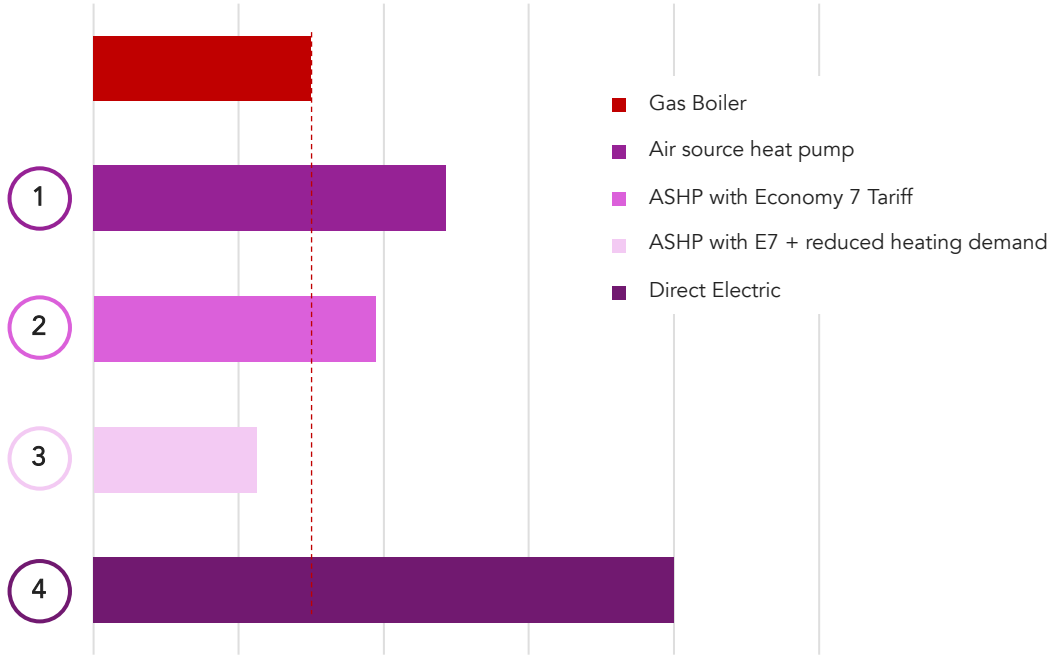
Minimising disruption to residents

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 (82m²) based on an existing space heating demand (assumed to be approx. 160 kWh/m²/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/m²/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*

7 Asset management / maintenance decisions should be consistent with the Retrofit Action Plan

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.

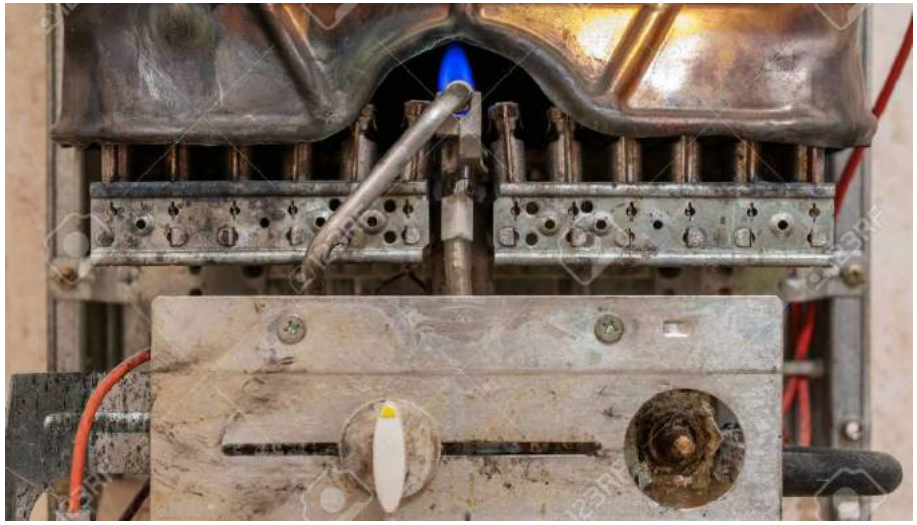
Review existing maintenance budgets now

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.

All 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.

8 Boroughs will work collectively to develop skills, procurement models, and engage with residents

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.

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
	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
		Low carbon heat networks
		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

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^2.yr on average as a way of optimising risk and cost. We envisage a bandwidth of 20-120 kWhr/m^2/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.

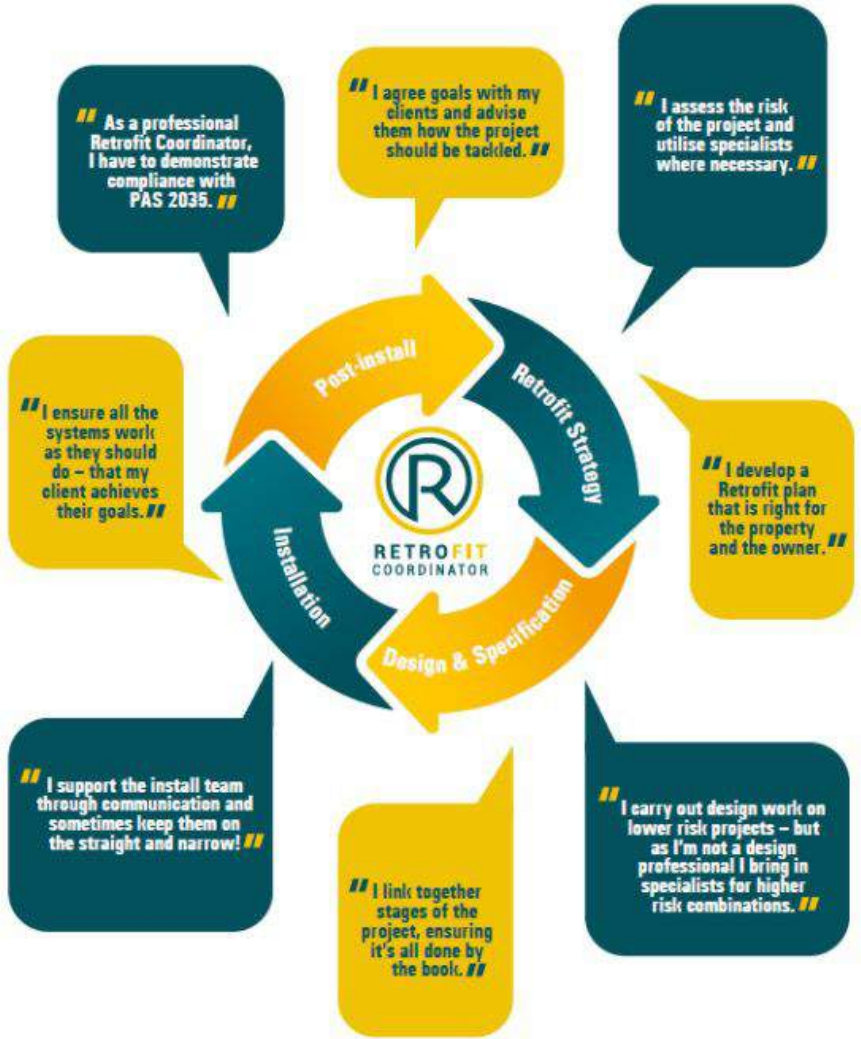


Diagram from Retrofit Academy training showing how the retrofit process should work and how retrofit coordinators should help facilitate this.

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 of challenge in reaching that target.

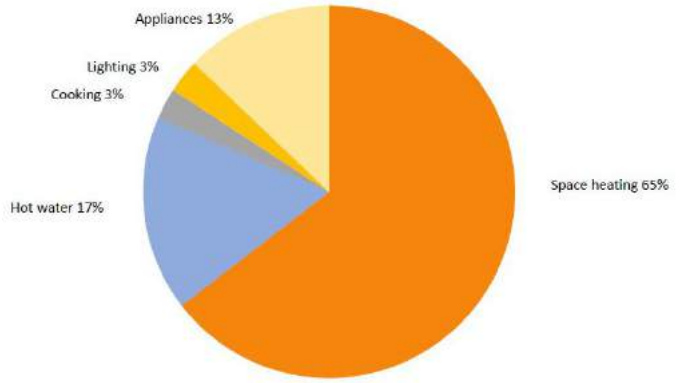
Space heating metric

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 kWhr/m^2/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 kWhr/m^{2}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 kWhr/m^2/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.

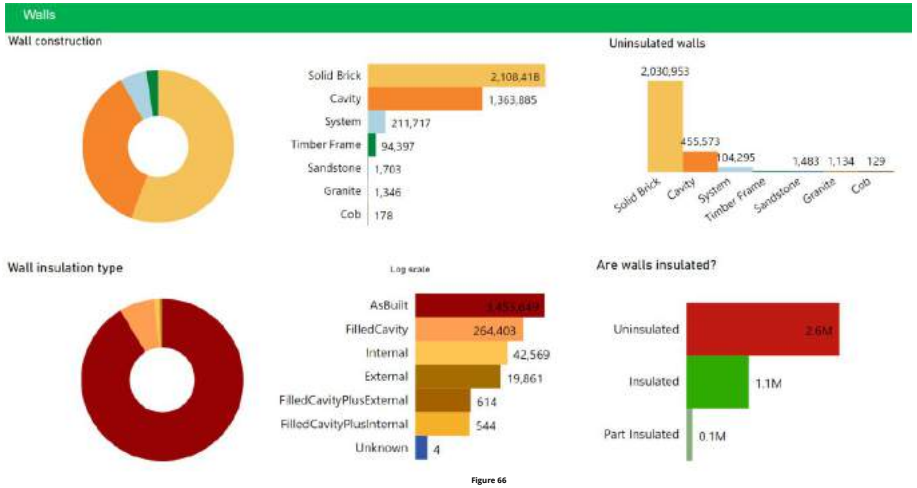
Considering borough specific opportunities and constraints

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^2/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^2. Comparison of these figures will provide an indication of the average performance of homes and fuel poverty risks.

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 kWhr/m^2/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:

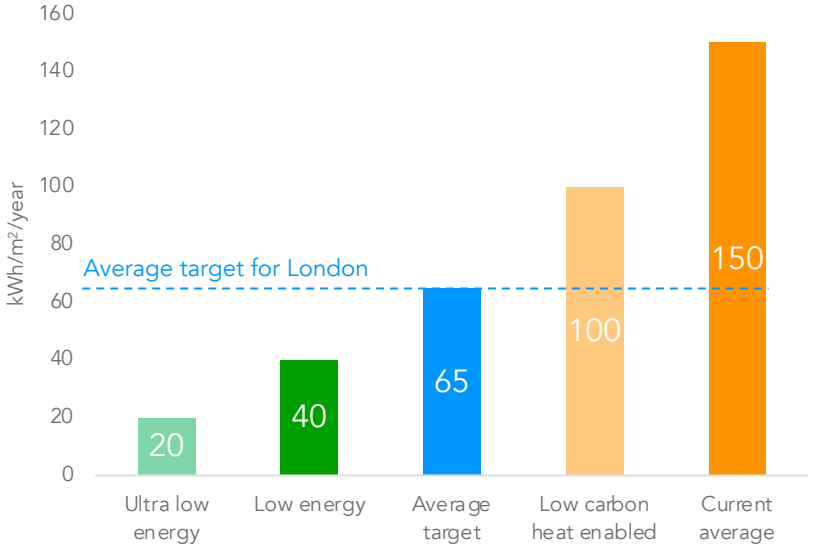
1. Planning considerations/restrictions
2. Managing technical risks such as moisture
3. Economics constraints
4. Approach to decarbonising of heat

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 kWhr/m^2/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 kWhr/m^2/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.

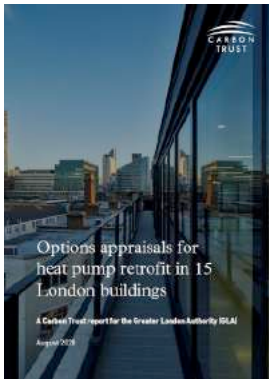
It would limit the impact on energy costs. The Carbon Trust's recent report for the GLA, *Options appraisals for heat pump retrofit in 15 London buildings* shows a threshold of space heating demand at around 80-100 kWh/m^2/year, above which fabric improvements are necessary when the heat source is changed for annual heating costs to be equivalent to or less than current gas costs[1]. 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.

[1] 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^2)	Heating fuel	EPC Rating & **kWh/m²/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

Action 1 Activity 1.3 > Enable windows upgrades and no more single glazing in London by 2030

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

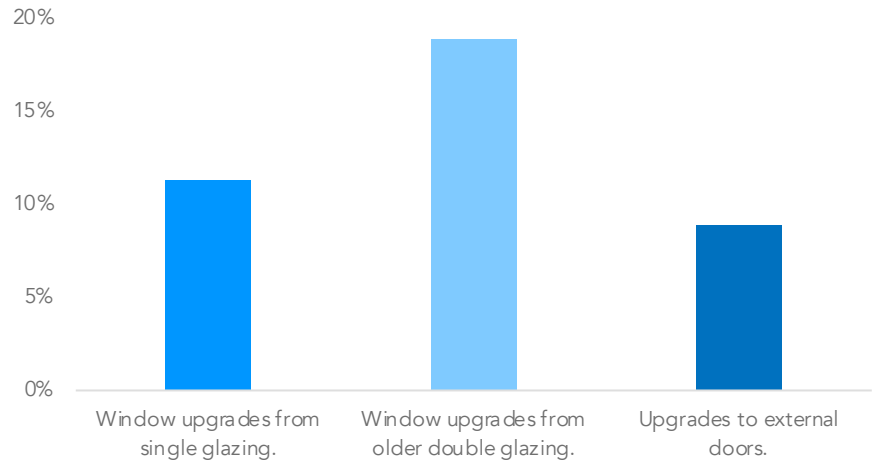
One of the barriers to large scale adoption of better windows are aesthetic and heritage considerations. This has certainly restricted works to listed buildings and in many conservation areas. High quality double, triple and evacuated glass now offer aesthetically compatible options for all building 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.

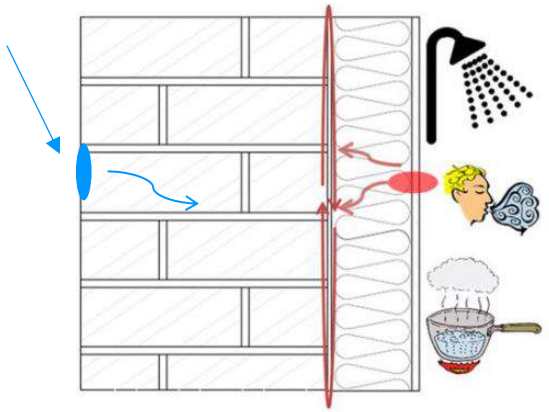
Addressing moisture and fire risks together

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 insulations may be the safest generally and especially in historic buildings, which often rely on moisture open fabric to manage these issues.

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

Action 2 Develop a plan for retrofitting ventilation systems to improve health and air quality

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_2 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 $5m^3/m^2/h$ @ 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

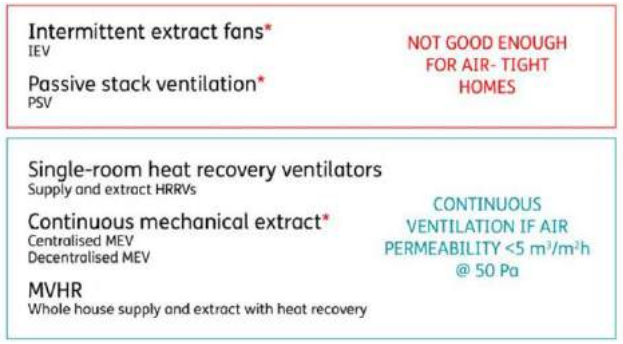
Where a central fan is possible, a further improvement is to provide balanced supply and extract ventilation with heat recovery. This provides the best air quality by guaranteeing the supply air path. Heat recovery saves more than 10x the amount of electricity needed to run the fans through saved heat 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.



A continuous mechanical background ventilation strategy should be adopted wherever a retrofit may improve the airtightness of the home below a permeability threshold of $5m^3/m^2hr$.

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.

Hot water storage is required when using heat pumps.

What other options are available?

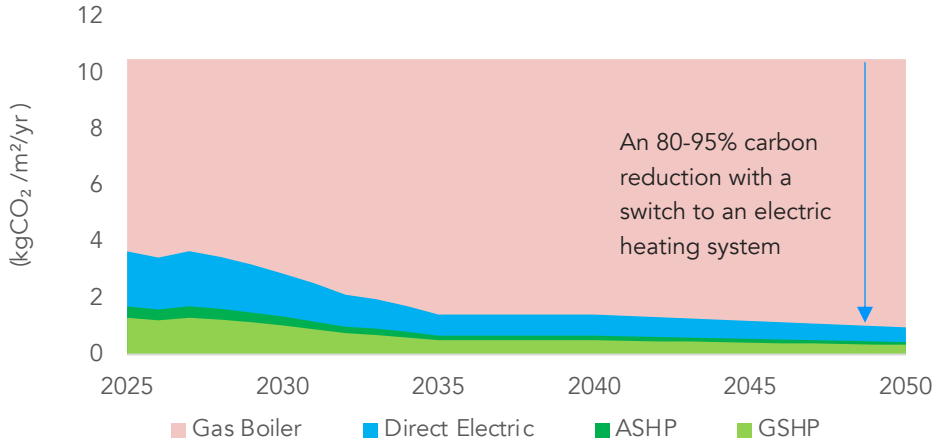
Direct electric heating, for example through panel radiators, will become low carbon in the future, as the grid continues to decarbonise. However direct electric heating can lead to very high heating bills.

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

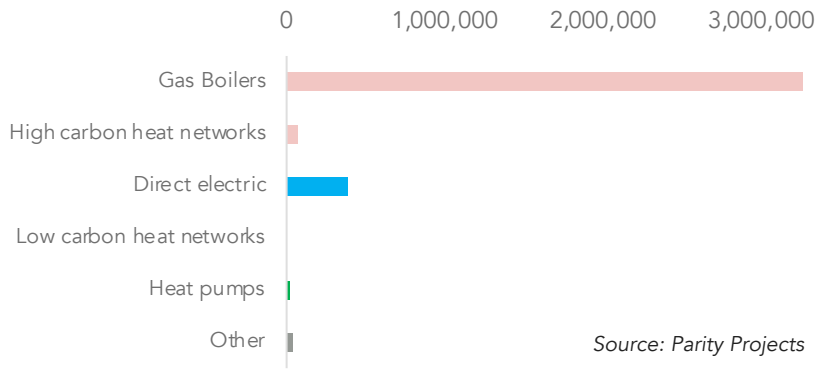
The following pages set out the recommended process needed to analyse each home and to determine the most suitable low carbon heat system.



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

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).

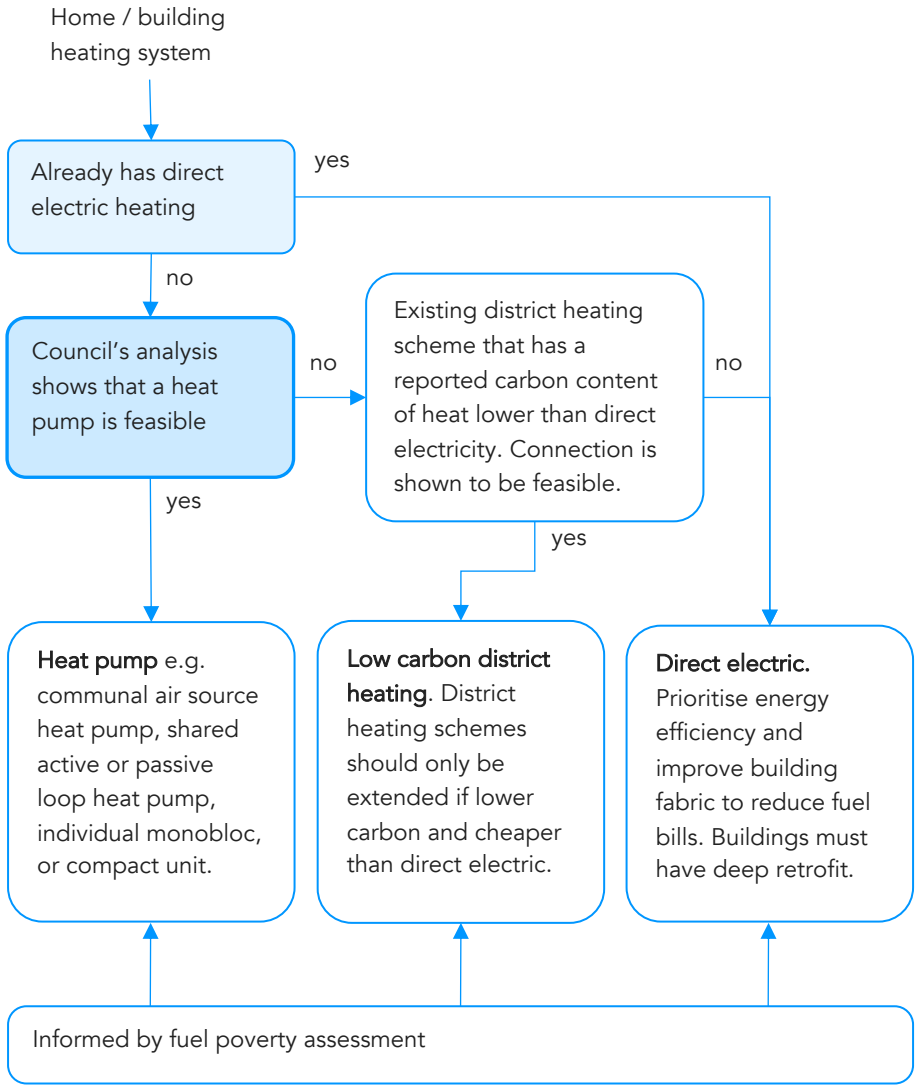
Heat pumps should be prioritised as an energy and carbon efficient technology that is available and can be installed now. This must be as part of a holistic approach, particularly for inefficient homes where there is a risk of fuel poverty.

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.

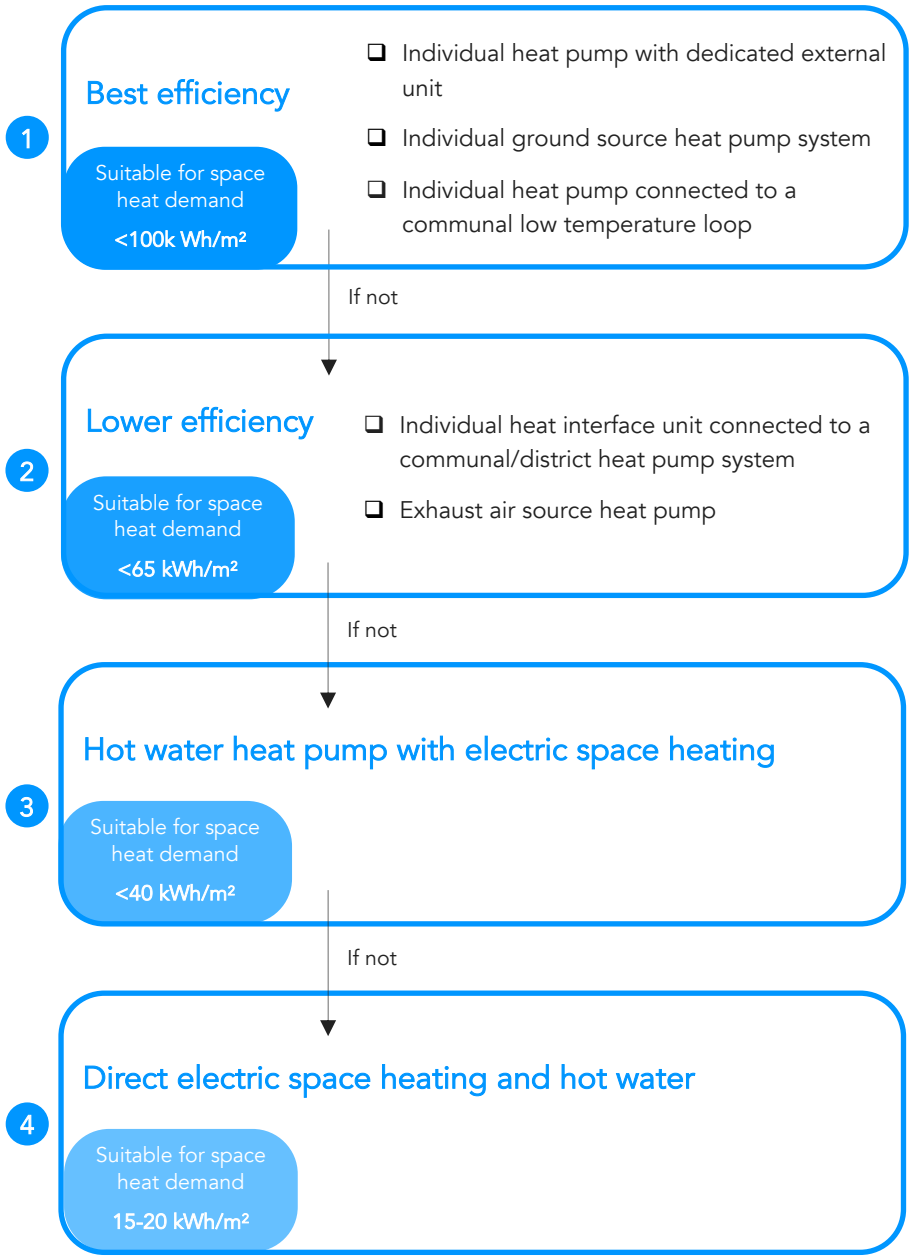
As the options step down from most to least efficient heat source, the fabric performance – the space heat demand – has to be improved in order to reduce the energy demand such that the change to low carbon heat does not substantially increase energy bills, to limit the changes to the existing heat emitters 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



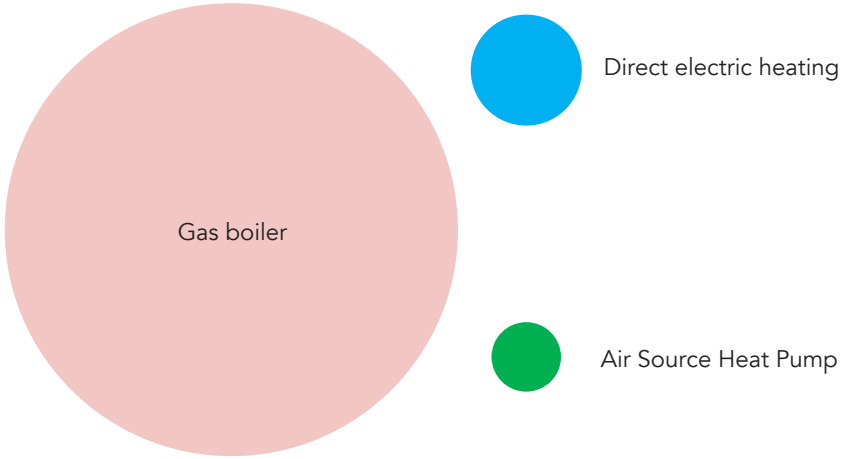
Action 3 Activity 3.3 > Stop the replacement of gas boilers with gas boilers

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_2 emissions from a heat pump will reduce, whereas the CO_2 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_2/kWh, compared with gas which has an almost static carbon factor of 230gCO_2/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_2 and direct electric heating systems 4x more CO_2.



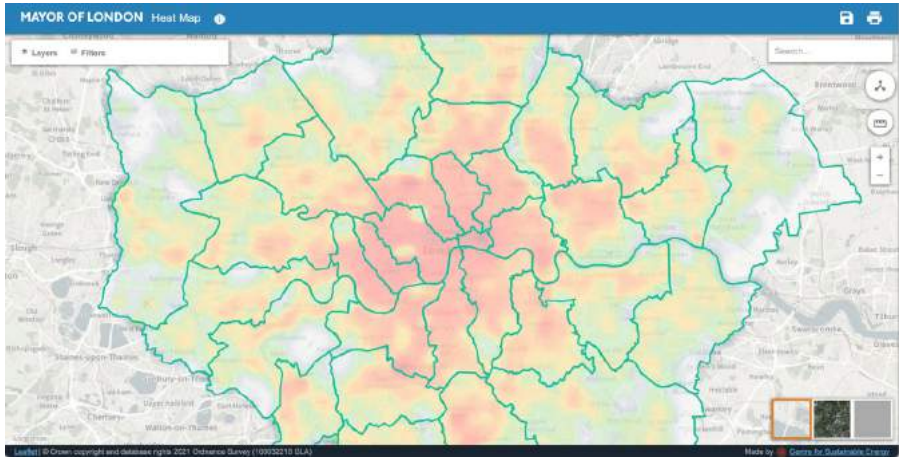
Relative CO_2 emissions of different heating systems: Over the course of the next 30 years, for the same amount of heat delivered, a gas boiler will emit 10x more CO_2 than an Air Source Heat Pump, and 4x more CO_2 than a direct electric heating system using grid electricity.

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.



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

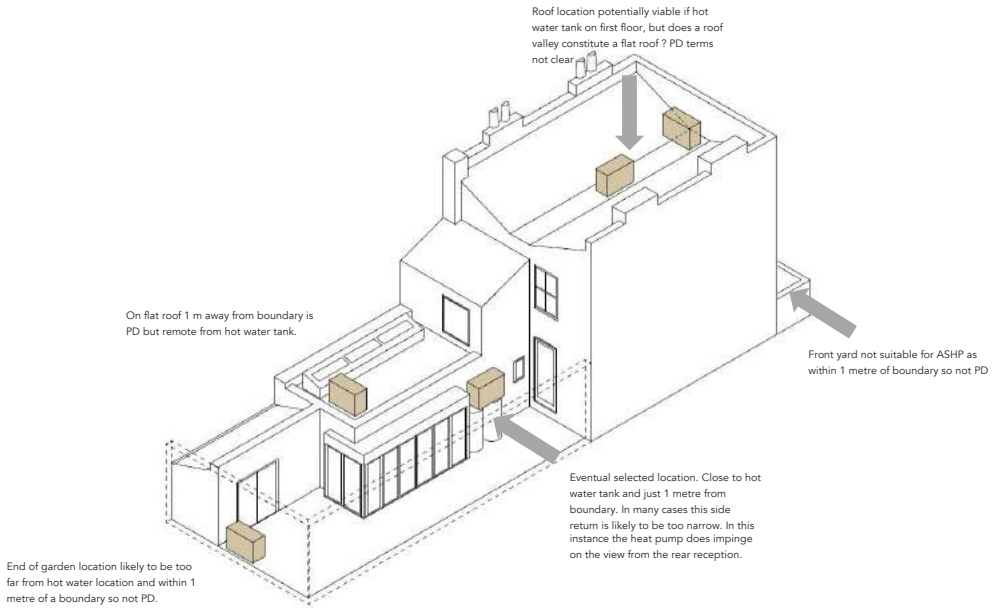
Single dwellings are arguably the 'ideal' type for a heat pump roll out as they can be fitted with an individual air source heat pump (ASHP). Anecdotal experience of fitting these has shown that it is not always easy though; permitted development rights are not always clear, nor do they always help. 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 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.

Action 3 Activity 3.5 > Develop clear guidelines/requirements to 'get heat pumps right'

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		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^2/yr) is a key requirement.
Supply chain is not ready to maintain them		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		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		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		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		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		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		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		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		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 downs.
High servicing costs		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		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		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.

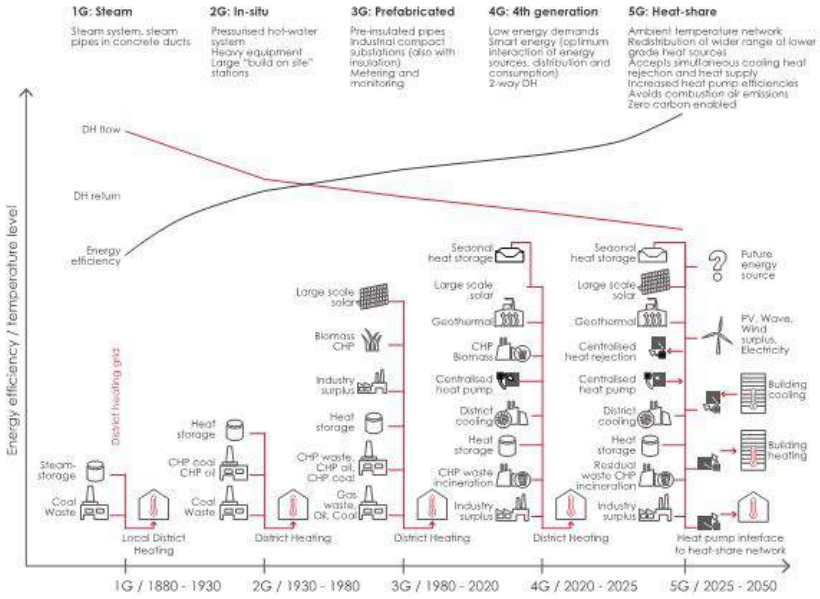
No fossil fuels for new networks

To 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.

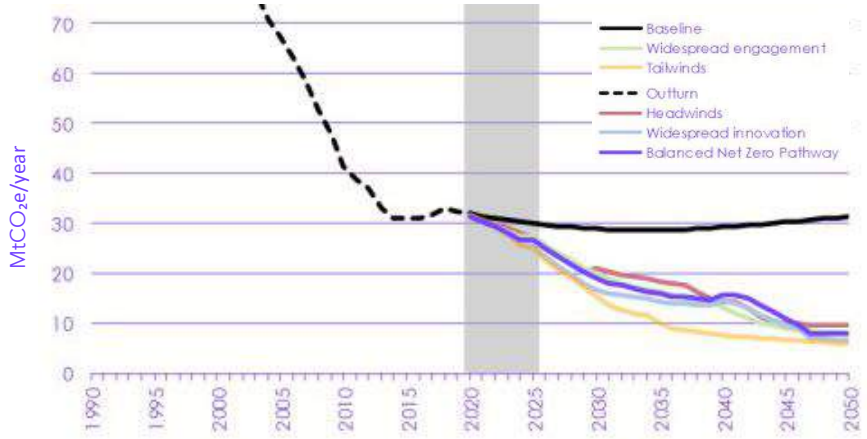
The future of Energy from Waste

Energy from Waste is one of the highest carbon forms of electricity generation, with emissions of around 890 gCO_2/kWh[1]. This is almost five times higher than the 181 gCO_2/kWh emitted by the UK electricity mix in 2020[2]. 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

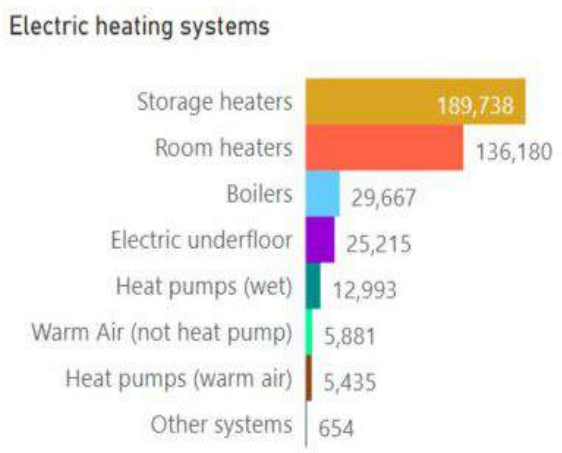
Direct electric heating comes in a number of different forms. According to Parity Projects' modelling, there are around 400,000 homes in London that currently have some form of electric heating. More than half of the electrically heated homes have either storage heaters or electric panel/convector heaters. 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^2/yr.

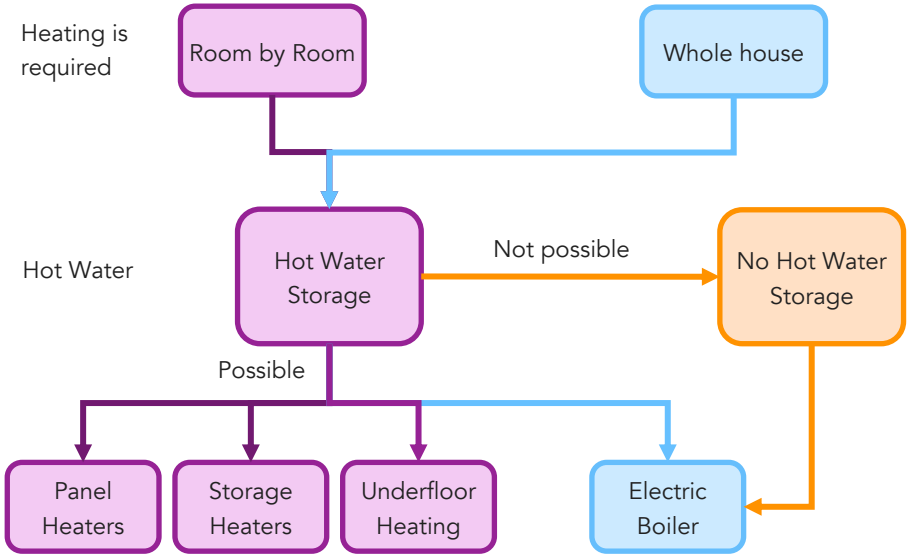
The choice of which electric heating system would be most suitable is then driven by the physical constraints of the building and the needs of the occupants. In a home that currently has a wet radiator system, it may be simplest to install an electric boiler. Storage heaters offer a good opportunity 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.



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.

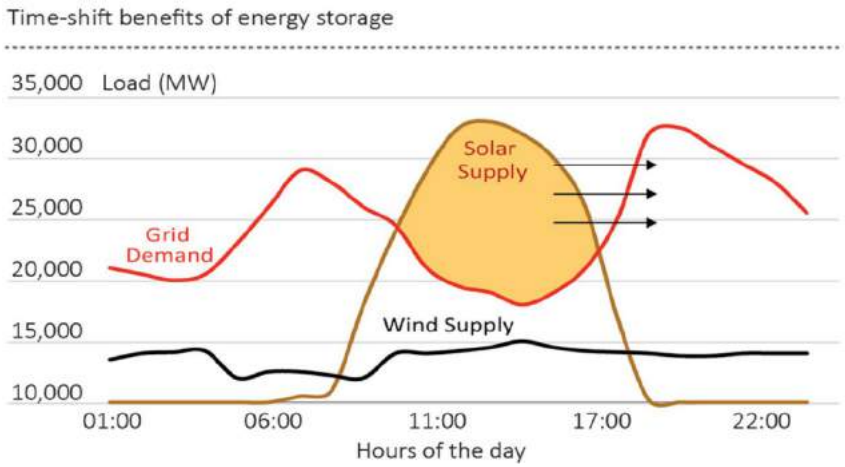
Planning of infrastructure upgrades can be a complex process, requiring negotiation of access and wayleaves and permissions for road closures, all of which can take years. Investment plans are region-wide, crossing borough boundaries and are set out in 5 year budgets, the latest of which is currently 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 RII0-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')



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.

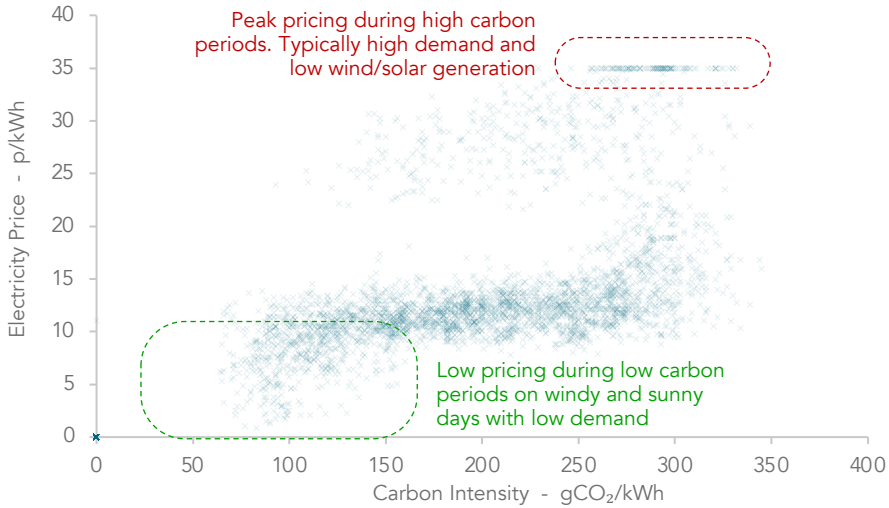
Smart Meters and electricity tariffs

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)

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**[1] 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.

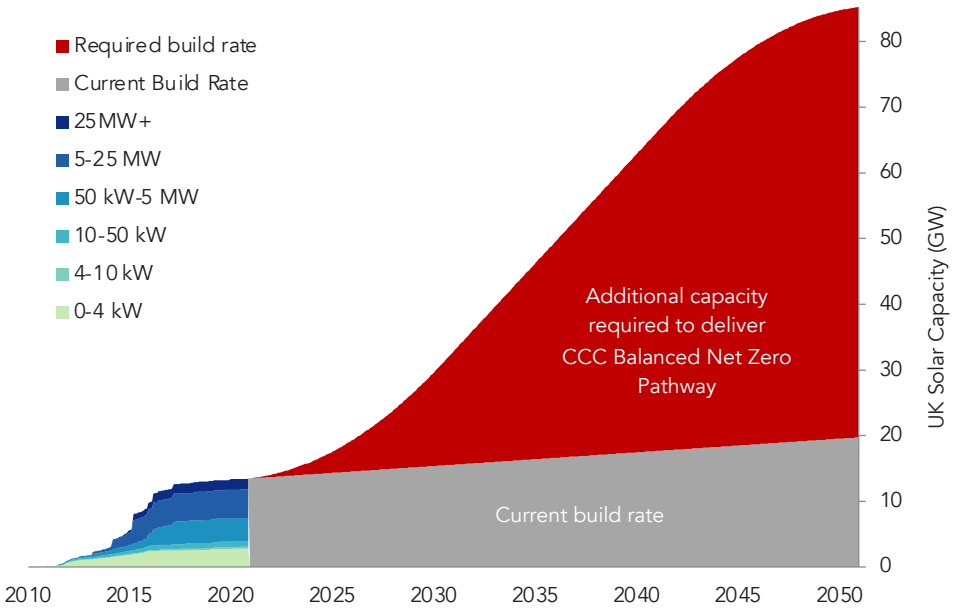
The UK has not yet established how to share out the renewable energy requirement nationally. The density of population and economic activity in London mean that most power is required where there is least space to generate it. This imbalance needs to be addressed but is not in the control of the London 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.

[1] 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.

High carbon → HEAT DECARBONISATION → Low carbon

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

Low energy ↑ High energy

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

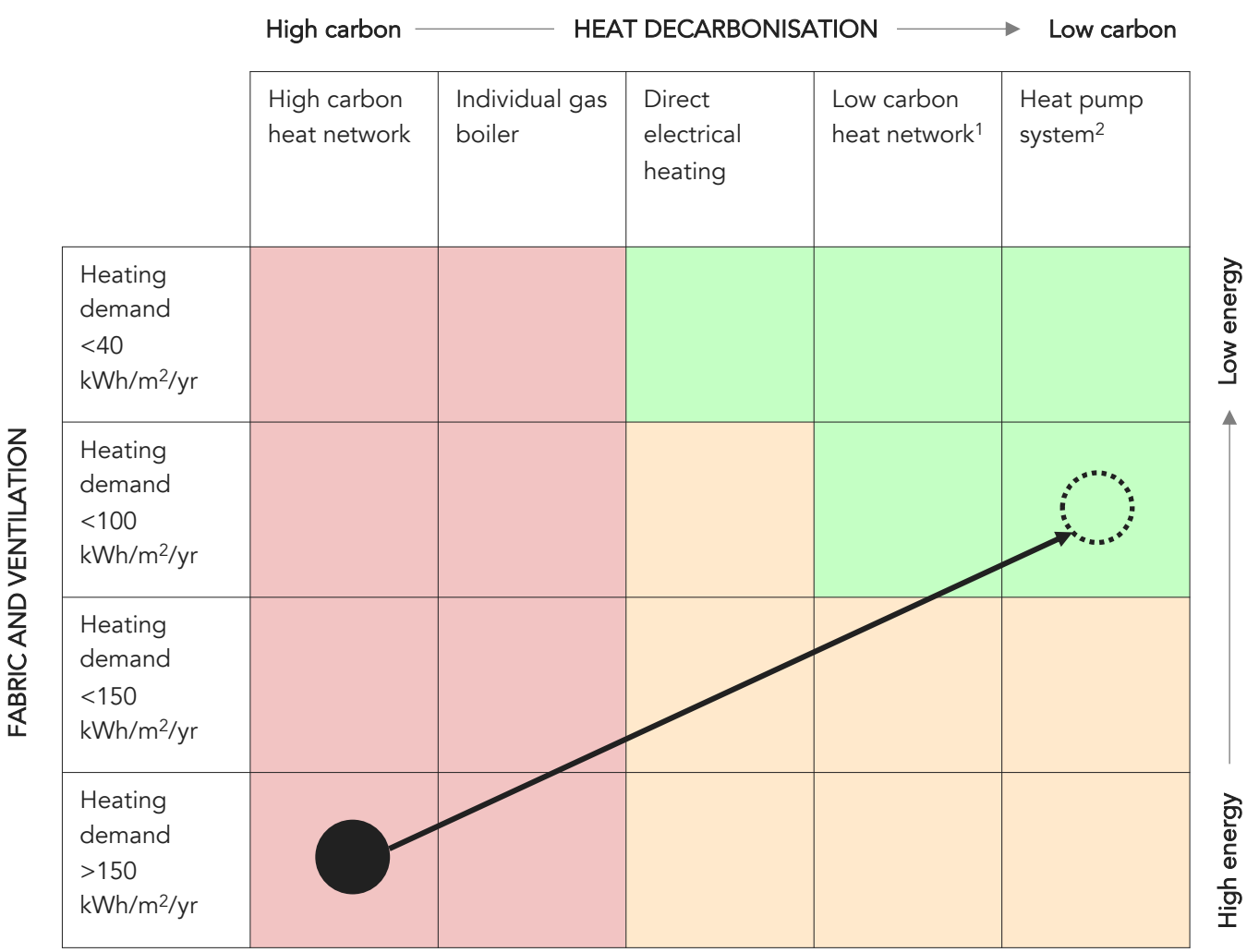
Low carbon heat and sufficient level of energy efficiency
Compatible with Net Zero

[1] 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.

[2] 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.
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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

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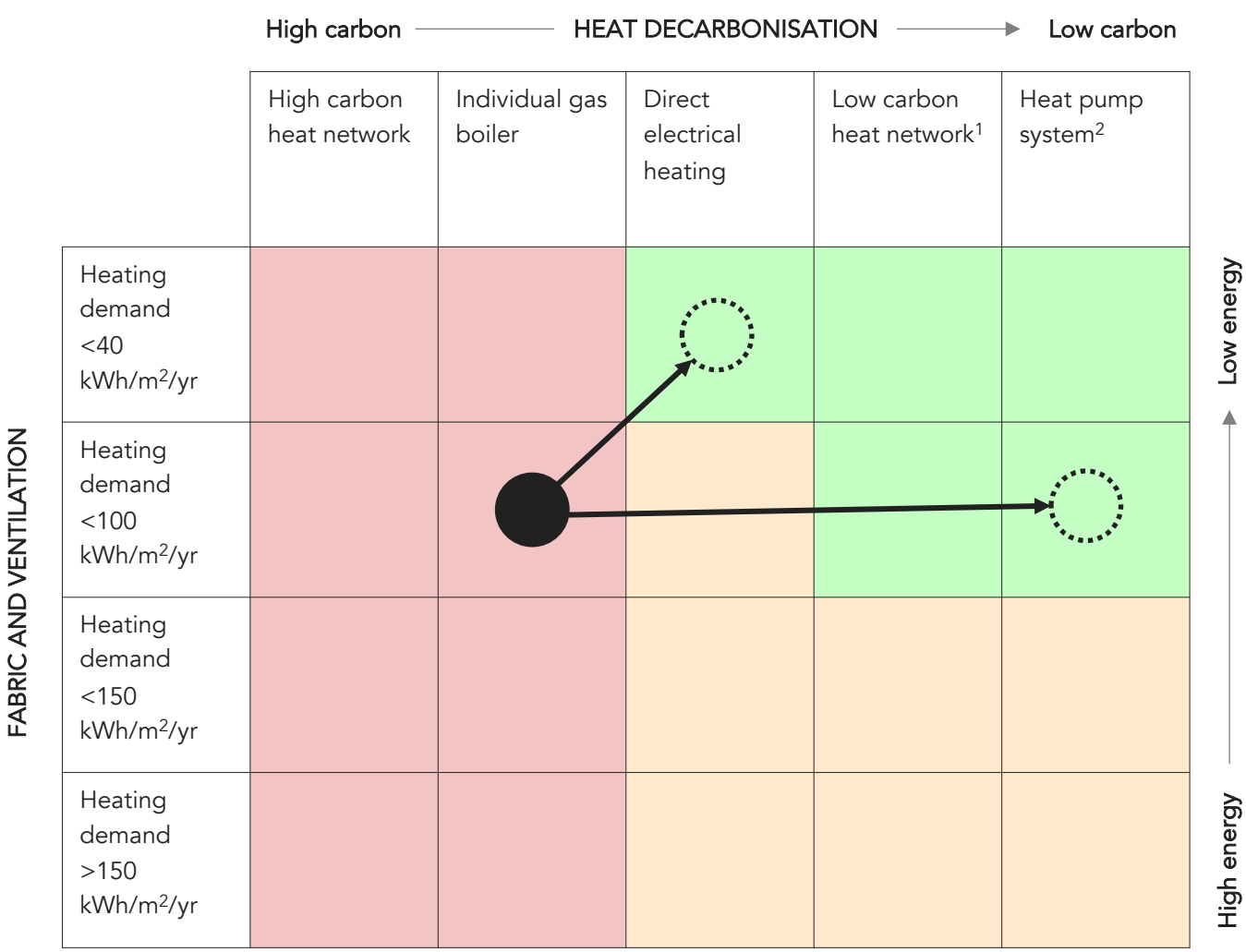
[2] Could be an individual or building level heat pump with low distribution losses.

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.



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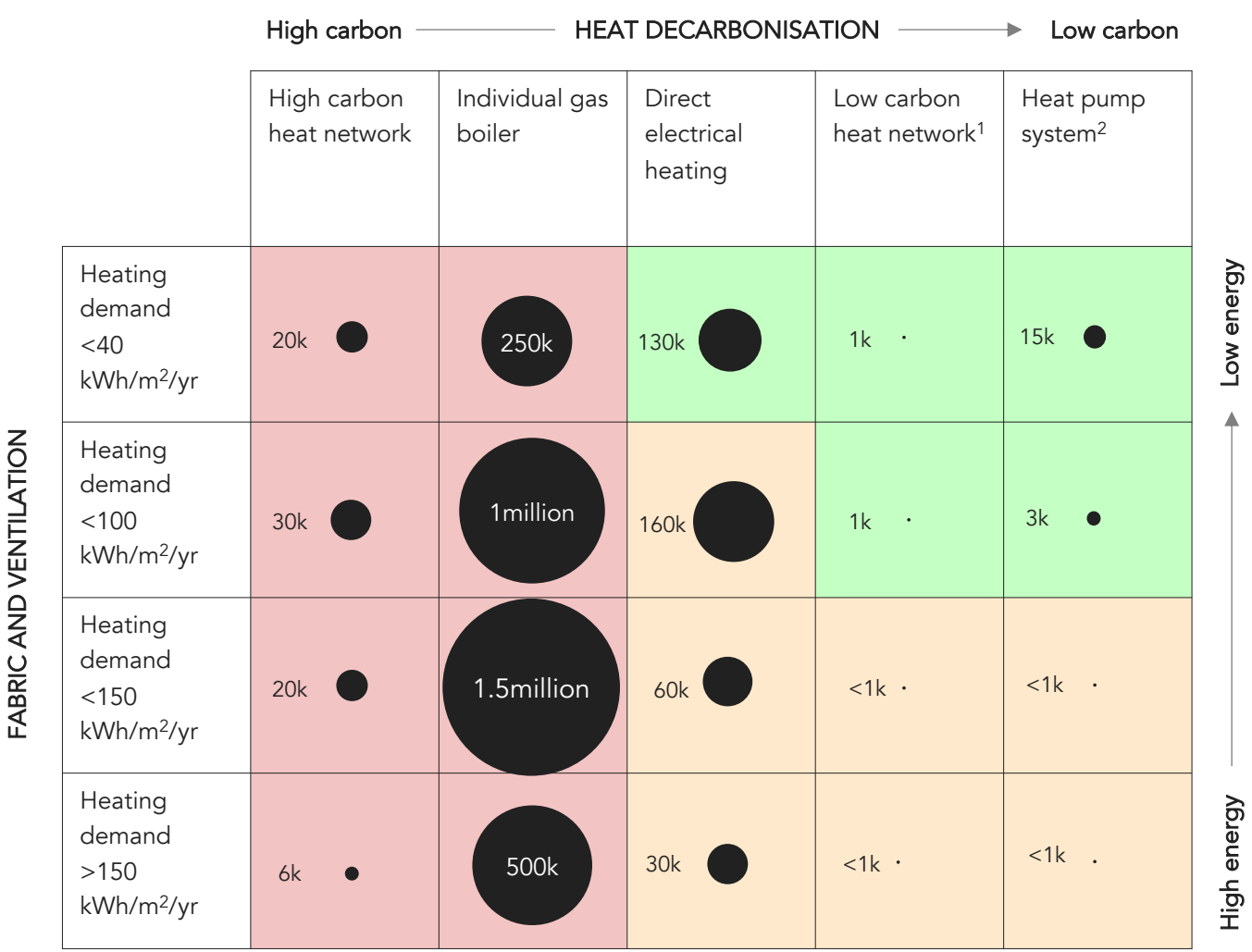
Current stock analysis

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



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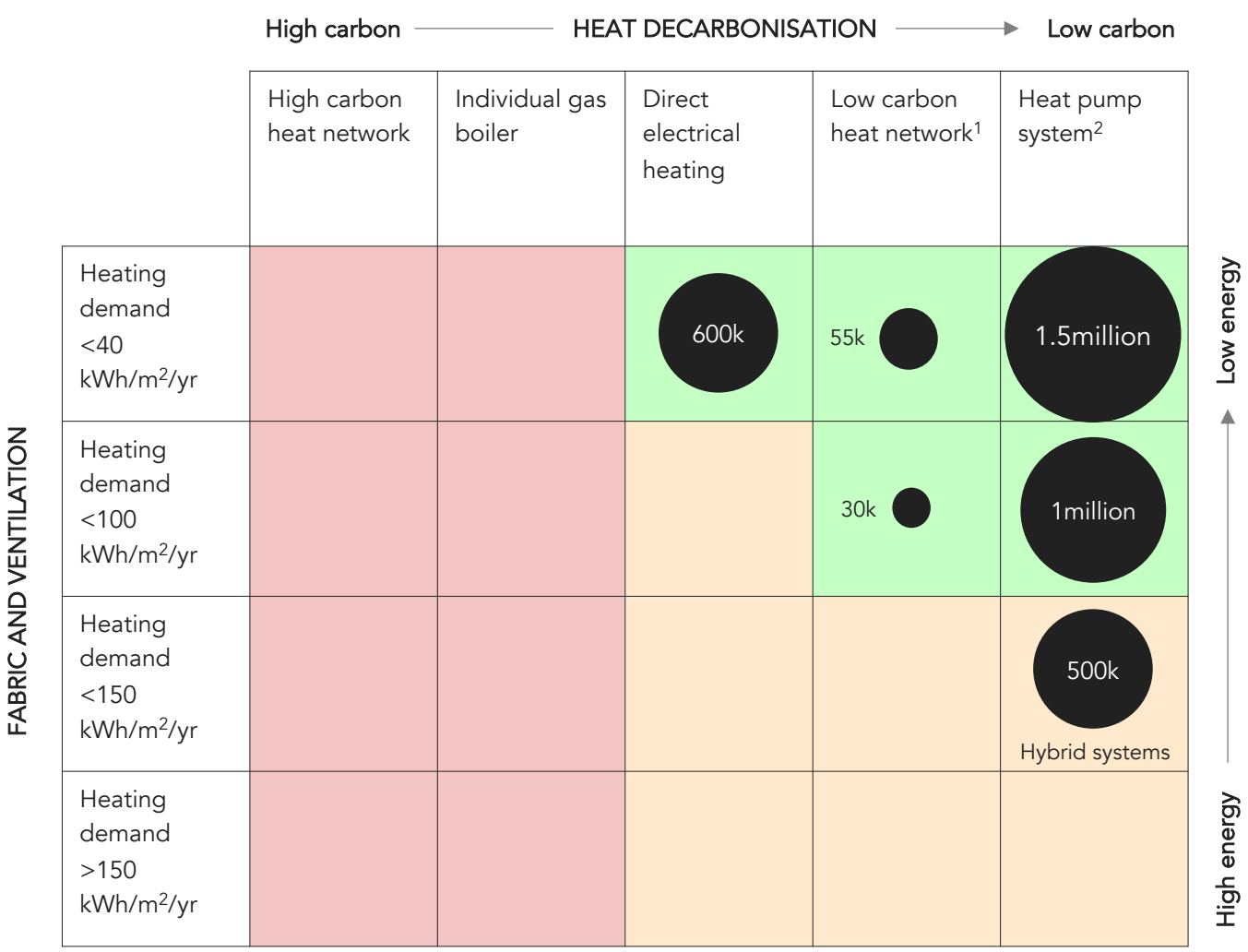
[2] Could be an individual or building level heat pump with low distribution losses.

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



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Action 6 Activity 6.1 > Develop whole house retrofit plan templates for key building archetypes

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:

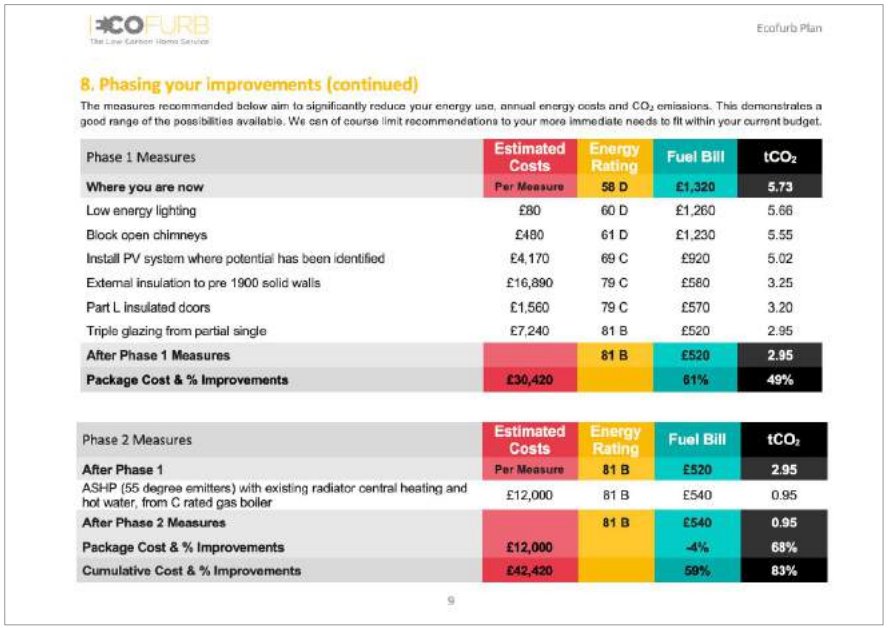
- Wide ranging assessment of the building
- Identification of repairs required to make the building 'retrofit ready'
- Evaluation of appropriate energy efficiency measures, taking care to manage risk
- Indoor air quality and the need to design in ventilation systems that deal with winter and summer conditions
- 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

Ecofurb Plan

8. Phasing your improvements (continued)

The measures recommended below aim to significantly reduce your energy use, annual energy costs and CO_2 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_2
Where you are now	**Per Measure**	**58 D**	**£1,320**	**5.73**
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
After Phase 1 Measures		**81 B**	**£520**	**2.95**
Package Cost & % Improvements	**£30,420**		**61%**	**49%**

Phase 2 Measures	Estimated Costs	Energy Rating	Fuel Bill	tCO_2
After Phase 1	**Per Measure**	**81 B**	**£520**	**2.95**
ASHP (55 degree emitters) with existing radiator central heating and hot water, from C rated gas boiler	£12,000	81 B	£540	0.95
After Phase 2 Measures		**81 B**	**£540**	**0.95**
Package Cost & % Improvements	**£12,000**		**-4%**	**68%**
Cumulative Cost & % Improvements	**£42,420**		**59%**	**83%**

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:

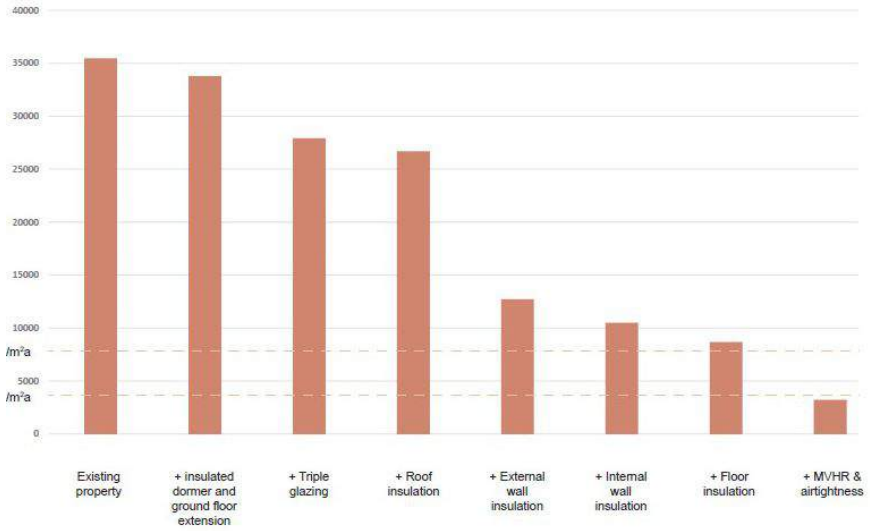
1. Packages of measures that are likely to be applicable
2. Specific risks and how they might be managed
3. Typical detail and interface challenges
4. Potential phasing
5. Expected energy and carbon savings
6. How the fabric measures work alongside the decarbonised heat approach

Templates created at scale would have two far reaching consequences:

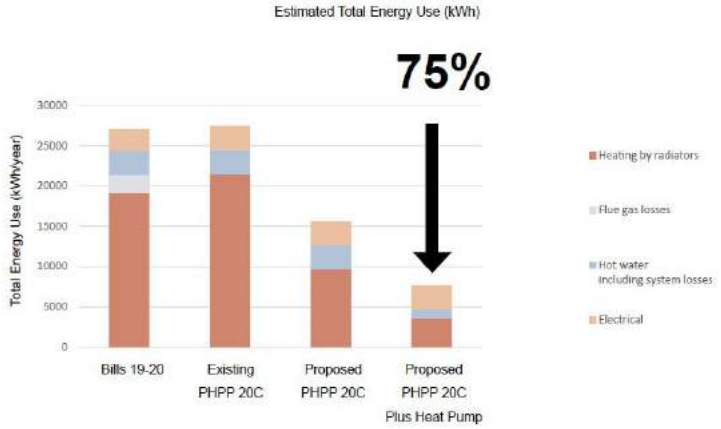
- They would provide homeowners and landlords with a **starting point** so that they can coordinate carbon reduction measures with their ongoing maintenance / extension and other life plans.
- They would help develop a deeper understanding of the costs, measures, skills and supply chain needed within 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.

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

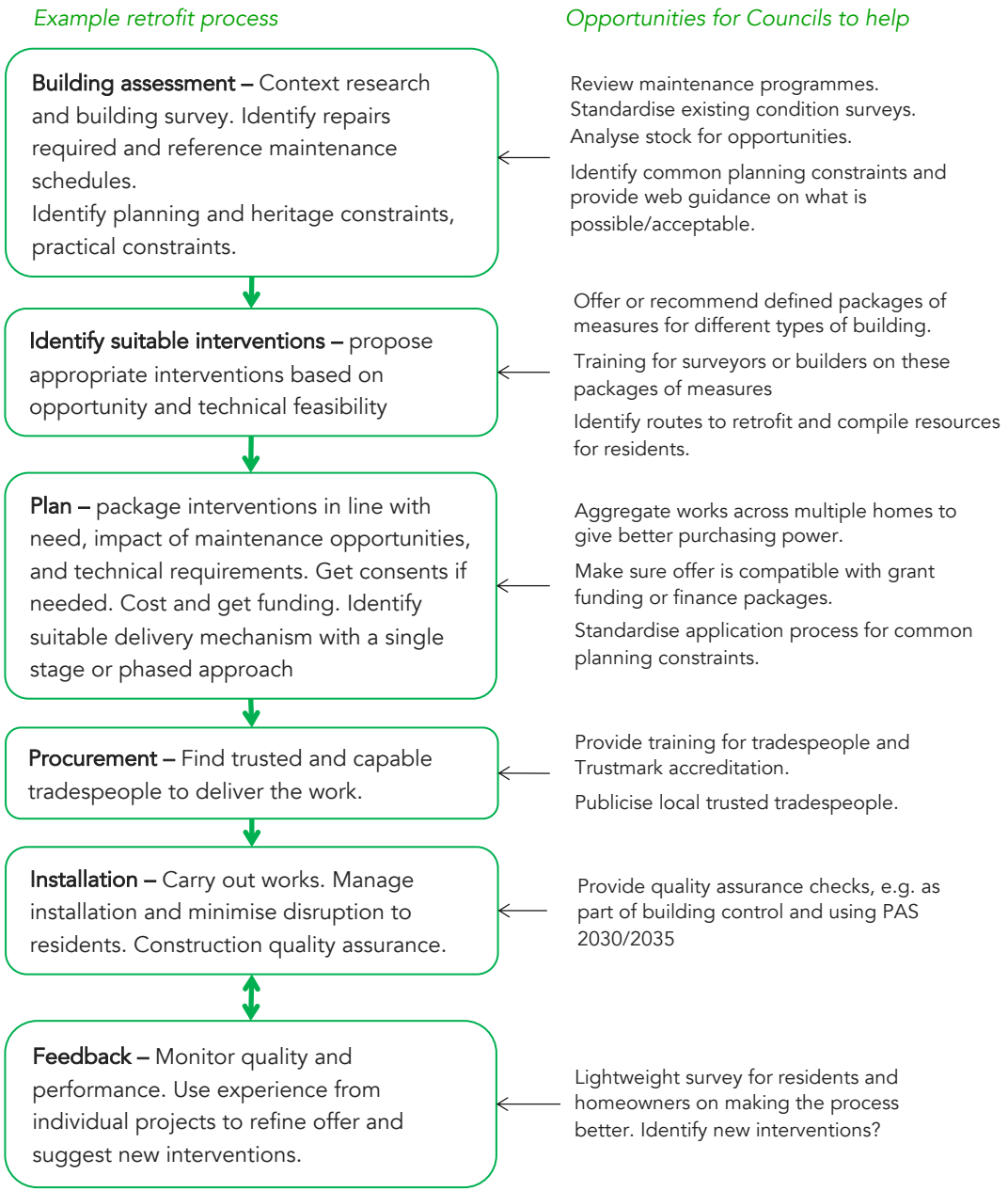
Improvements to energy efficiency might happen in lots of different ways. However in order to successfully deliver a retrofit, a coordinated approach is needed for the whole building or group of buildings (see Action 6 on mapping each building's journey towards lower energy costs and Net Zero). The London 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 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.



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 **action** or consider*
Roof repair (tiles, flat roof)	~30 years	• **Roof insulation and airtightness** • **Airtightness connections to surrounding elements**
External render or paint	<10 years (cement) 25 years (BBA certified)	• **External wall insulation** • Replace windows while there is access • Internal wall insulation while there is access and disruption
Windows & door replacement	10 years guaranteed, typically 20-30 years for new windows.	• **Replacement with triple glazed windows or best available for appearance constraint.** • **Ventilation approach.** Recommend new windows don't have trickle vents, move to MVHR. • **Airtightness connection to wall and floor.**
Replastering wall or ceiling	~20 years	• **Internal wall insulation** (if appearance constrained) • **Roof and wall airtightness**
Kitchen replacement	~5-10years	• **Ventilation strategy.** Replace cooker hood with recirculation type or careful direct extract if strategy is for MVHR, or continuous extract as part of MEV system. • **Insulation to kitchen floor** (if ground floor) • **Internal wall insulation behind units**
Boiler	10 - 15 years	• **Replace with heat pump system** • Improvements required to reduce heat load.
Extract Fan/Cooker Hood	~5-10 years	• **Ventilation strategy.** Replace cooker hood with recirculation type if strategy is for MVHR, or continuous extract as part of MEV system. • Induction hob and all electric cooking.
Electrical Wiring	Tested every 10 years (homeowner) or 5 years (landlord)	• **Spare capacity for heat pump** • Metering including submeter for electric vehicle charging and heating • Spare capacity for electric car charging

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:

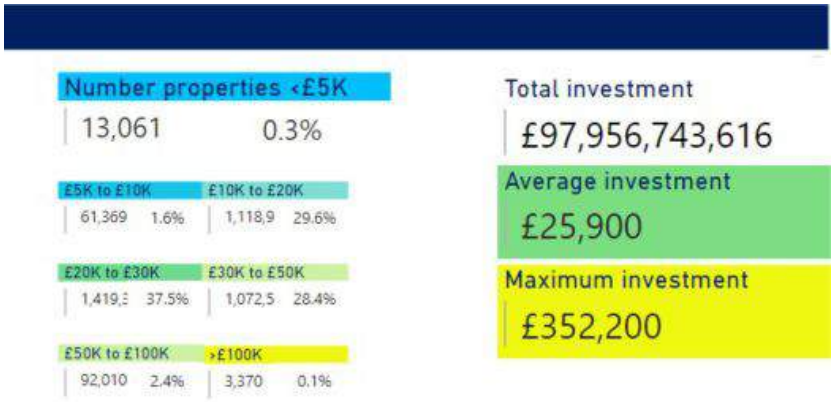
- Access to larger contractors who might only quote for projects above a certain contract value
- Shared project management, consultancy and quality oversight
- More consistent workforce learning and improving between similar work
- Labour buying power through larger contracts
- Product buying power 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.

Action 8 Activity 8.1 > Share procurement for council-owned homes

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.

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.

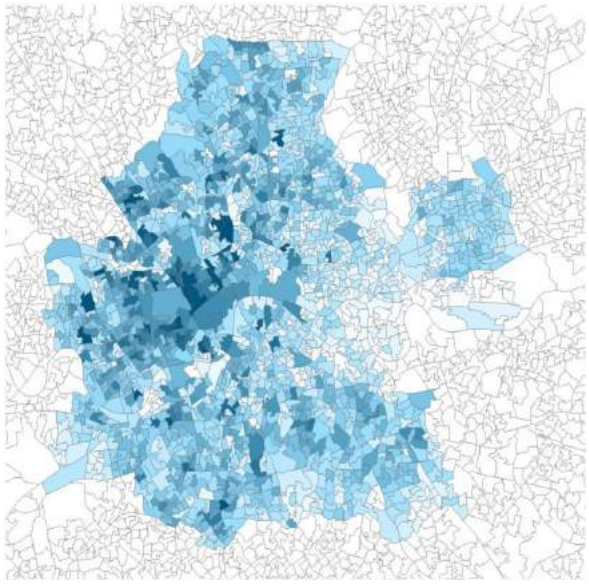
Area-based retrofit planning should help identify:

- **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 cab 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.

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*
Whole building refurbishment all at one time. 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
Phased packages of measures delivered across a large number of homes.	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
Phased packages of measures delivered home by home.	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

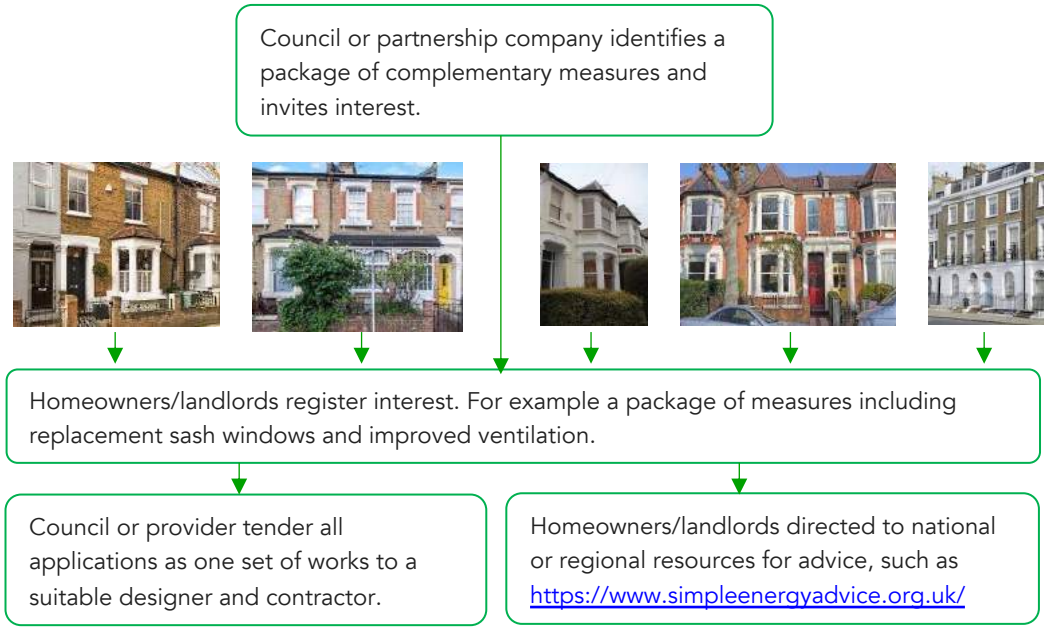
Action 8 Activity 8.3 > Consider a London-wide retrofit programme for homeowners

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: w**orking 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.

Action 9 Activity 9.1 > Provide planning guidance to enable retrofit

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 worse 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).

Giving 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

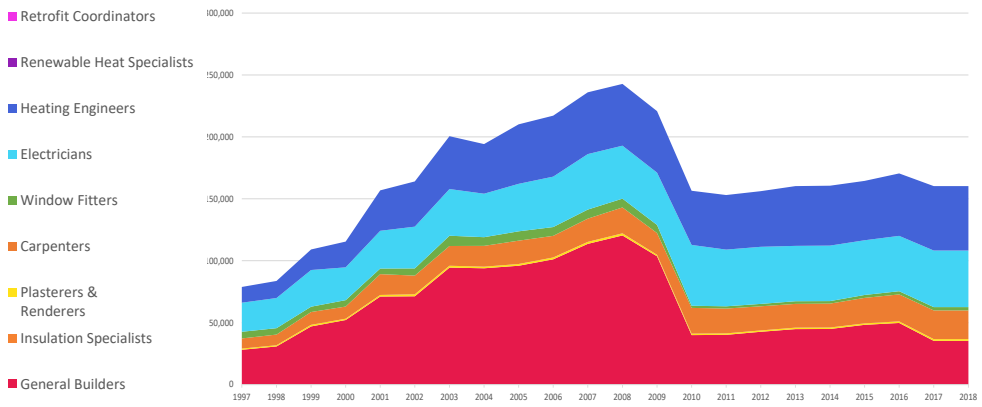
There is a large appetite for home improvement, and a significant opportunity to use the current 'build back better' intentions to promote and accelerate a retrofit skills agenda. To capitalise on this and deliver good quality retrofit, there is a need for skilled tradespeople.

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

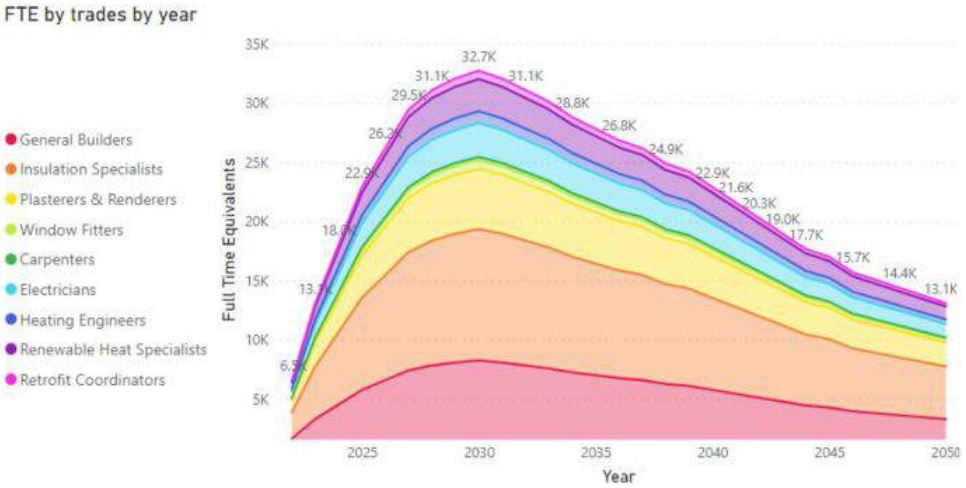
Retrofit Coordinators are a new and important profession that can provide oversight and enable retrofit work. Creating a clear call for Retrofit Coordinators could drive other parts of the market.



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)



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)

Action 10 Activity 10.1 > Work with partners to develop a spending commitment for retrofit

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.

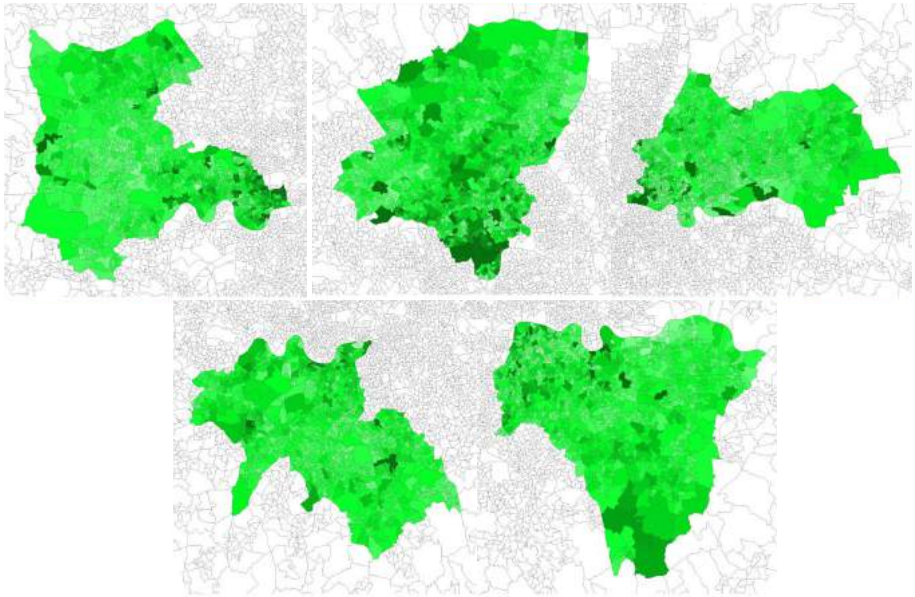
An example of the approximate investment level has been taken from the parallel work completed by Parity Projects. The exact amount and timescale would need to be decided by those involved.

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)

Action 10 Activity 10.2 > Develop a London-wide vetting scheme for retrofit installation

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

TRUSTMARK Government Endorsed Quality

Commercial tradesperson recommendation services. Checkatrade is the most established in the retrofit sector.

Checkatrade, Which?, myBuilder.com, TrustATrader, rated people

Social media websites where more organic recommendations often take place

nextdoor

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.

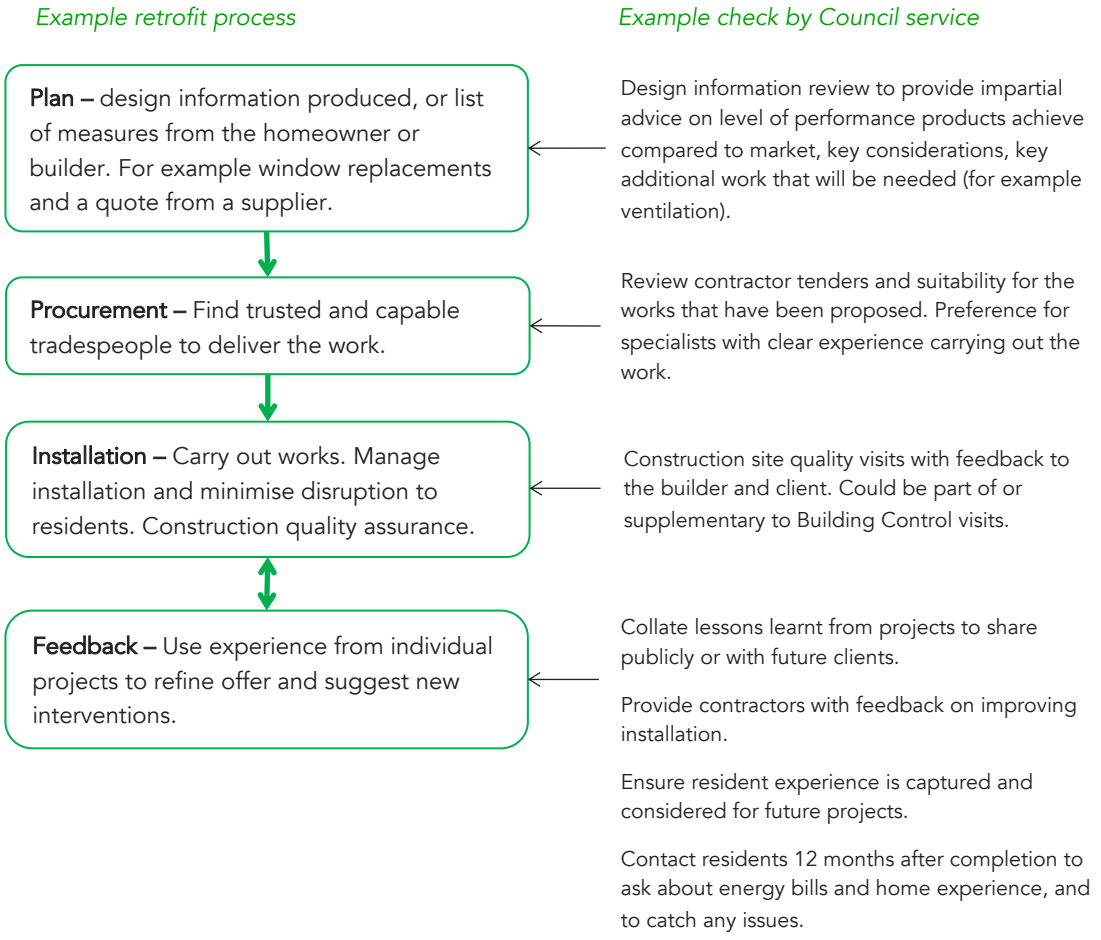
London local authorities should provide training for building control officers around energy efficiency and retrofit. They should investigate offering an enhanced service through local authority building control to act as a retrofit quality check.

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.



Part of an example retrofit process showing how a council service could provide quality assurance to homeowners or landlords undertaking improvement works.

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.

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 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.

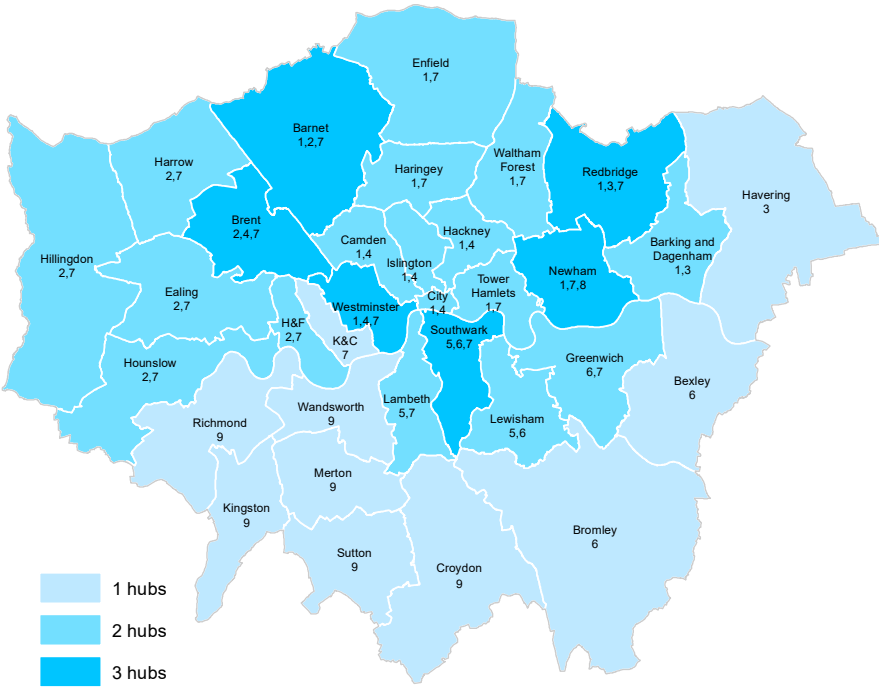
Making training available in London

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.



Key	MCA Hub Lead
1	College of Haringey, Enfield & North East London
2	Ealing, Hammersmith & West London College
3	London Borough of Barking and Dagenham
4	London Borough of Camden
5	London South Bank University
6	London South East Colleges
7	Transport for London
8	London Borough of Newham
9	South London and Partners

Map of Mayor Construction Academy hubs.

London local authorities should contact these hubs to ensure that retrofit specific training is available, review its consistency with the Action Plan and raise awareness of the skills required.

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_2 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

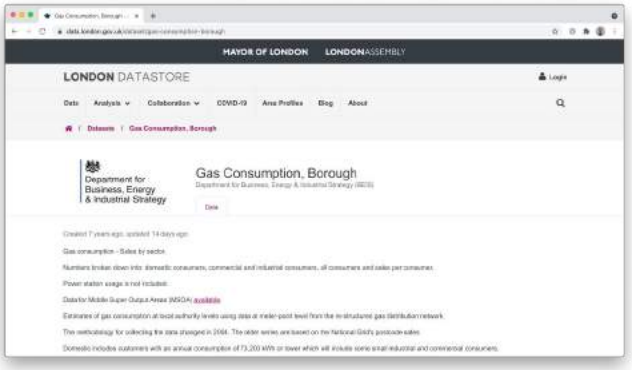
Gathering data on the total number of installations for each technology installed in London will give valuable information on whether we are moving in the right direction and how quickly. The number of gas boilers or Air Source Heat Pumps would for example be a good proxy for heat decarbonisation. These 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.

1. Dwelling scale monitoring
2. Borough level gas, energy and CO_2 monitoring
3. Procurement and installation monitoring

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 Switchee 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 funding to raise capital for retrofit of community buildings.

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	• Housing Association • Local council • Arms-Length Management Organisation	• First-Time Buyer • Mortgage Holder • Own Outright	• Landlord • Corporate Landlord • Asset Manager
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	• **Limited funds** – new construction, retrofit of existing stock and building safety improvements compete for council budgets • **High upfront costs** – both councils and housing associations have large portfolios • **Long term financing** – short term government grant programmes make it difficult to develop long term plans and finance models • **Interest rate** – housing associations have the highest share of the stock and face higher borrowing rates than local authorities	• **High upfront costs** • **Lack of access to capital** • **Low confidence in energy bill savings** – where homeowners are seeking full repayment via energy savings • **Duration of ownerships** - the energy bill savings may not accrue to the homeowner if they move out of the property • **Improvement not reflected in home value** • **Availability to financial products** and limited options and desire for borrowing	• **High upfront costs** • **Lack of access to capital** • **Split incentive** – most landlords do not pay energy bills and therefore do not financially benefit from the energy bill savings • **Improvement not reflected in rental value** • **Availability of finance products** • Freehold owners of leasehold rental properties are typically interested in **ground rent** only, which is **unaffected by property improvements**.
Key drivers	• Climate change targets • Broader value of health & wellbeing of tenants	• Climate change action • Minimising running costs • Increase in asset value from measures	• Increase in asset value from measures • Increase in rental value from measures

A different approach to finance for different tenures is required

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 £3,000 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

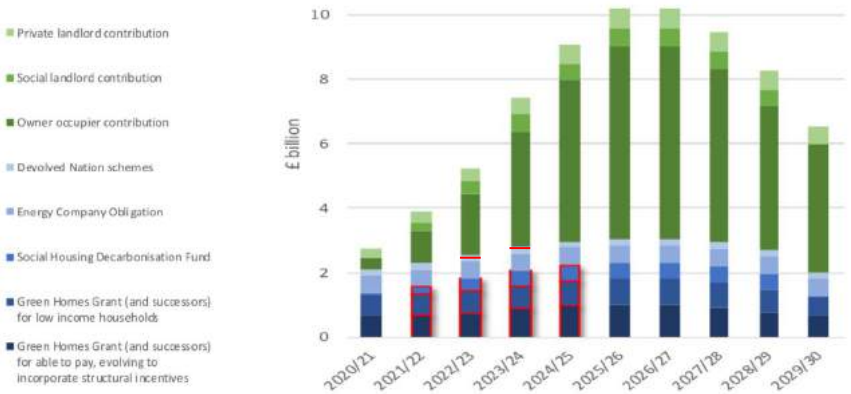
The Energy Efficiency Infrastructure Group (EEIG) and BEIS have both previously provided estimates on investment for a pathway towards **EPC C** for **all homes in the UK by 2030**: £73 billion and £65 billion respectively.

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_2 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.

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 100m² 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.

Plan investment using your Homes Revenue Account (HRA)

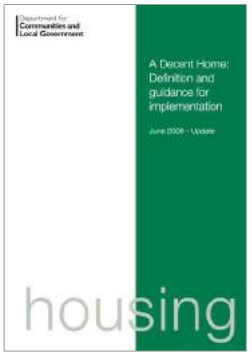
The HRA is the account in which a council's housing revenue (e.g. tenants' rent) and housing costs (e.g. property management and maintenance) are kept. It is a landlord account, recording expenditure and income arising from the provision of housing, it is not a separate fund but a ring-fenced account for certain transactions. By law, this account is separate from the 'General Fund' that local authorities use for other fiscal purposes.

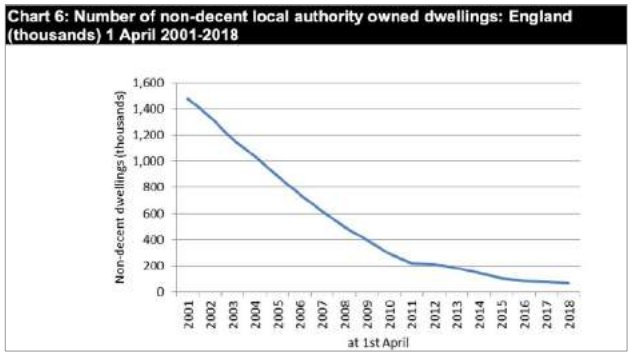
The main sources of income are from tenants in the form of rents and service charges, but public funding and borrowing can provide the capital that would be required for retrofit works and maximising capital finance is explored further under Action 13. There is also revenue from planning policies to 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 us understanding comparative cost of measures it is important to understand their second-order effects.

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

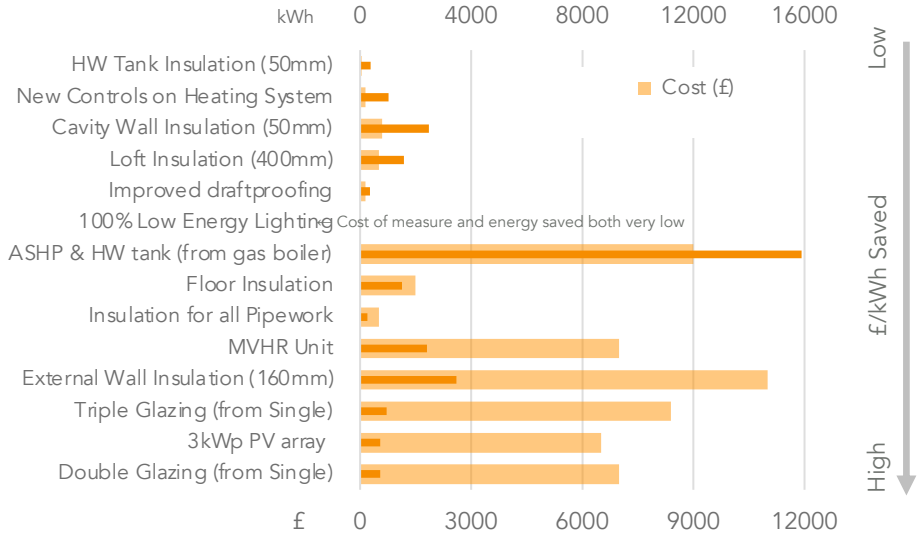
Targeted high energy savings will reduce bills and take more people out of fuel poverty, reducing the need for financial support.

Local economy and job creation

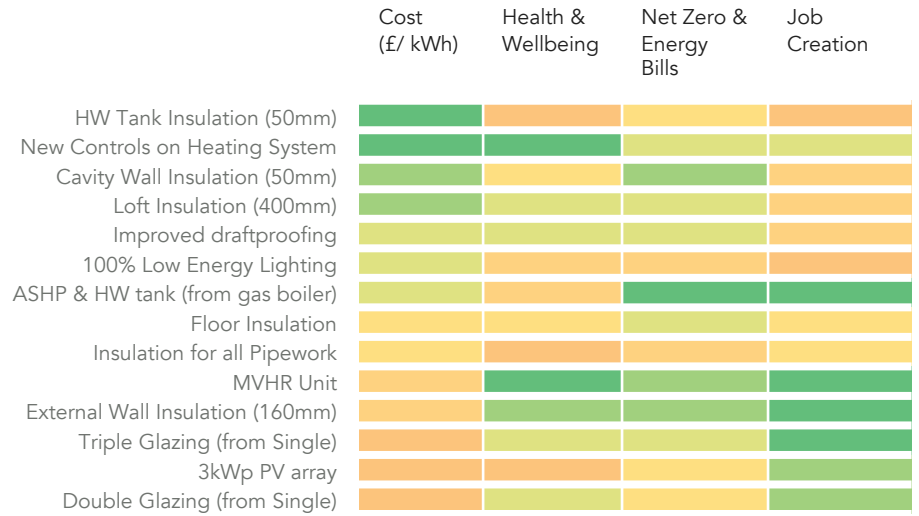
There is a fantastic opportunity for job creation in London. Parity Projects estimate that it can create 40,900 full time equivalent jobs for 9 years to get all homes to EPC B by 2030 and achieve 56% emissions reductions.

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.

Action 13 Activity 13.1 > Coordinate applications for government funding

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	**The Energy Company Obligation (ECO)** 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.
Grants	**The Green Homes Grant Local Authority Delivery scheme (LAD)** 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	**Social Housing Decarbonisation Fund (SHDF)** The Government have also pledged to spend £3.8billion over ten years on the SHDF. Following the £62 million demonstrator scheme, they have announced that a further £60million will be available to Local Authorities for 2020–21 as part of the main scheme, with £240million and £410million provisionally allocated in 2022–23 and 2023–24 respectively.
Grants	**Home Upgrade Grants (HUGs)** 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	**Warm Homes Discount** 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	**Domestic Renewable Heat Incentive (RHI)** 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

Lender 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.

Sources of Investment and Loans

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.

Coming soon

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

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.

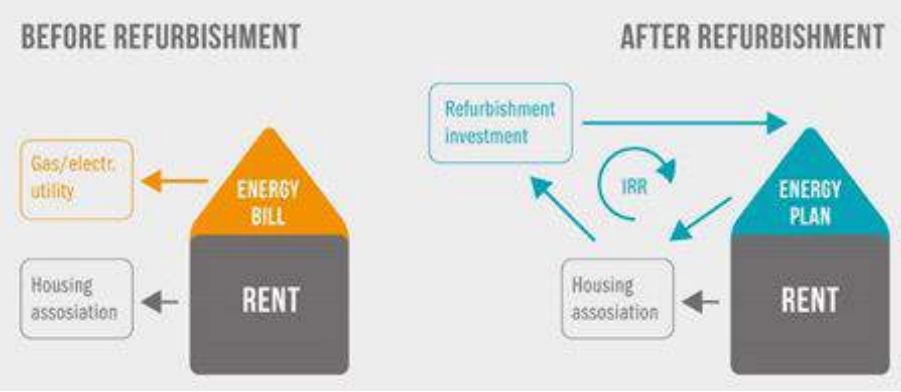
Emerging financial products can help mobilise capital

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
Metered energy savings	A standardised calculation methodology for energy savings from retrofit to provide confidence in payback.	✓	✓	✓
Building renovation passports	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	✓	✓	✓
Trustmark Platform / One Stop Shop	A platform to support customers through the retrofit journey: identifying measures, sources of funding and linking homeowners to a reputable supply chain.	✓	✓	✓
Residential Retrofit Principles	A recognised certification for financial products that support retrofit, to enhance the confidence of lenders and borrowers.	✓	✓	✓
Sustainable Housing Label	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

A table of innovative and emerging green finance products (SRS=Social Rented Sector / OO=Owner Occupier / PRS=Private Rented Sector)

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.

Action 15 Activity 15.1 > Consider developing innovative finance offerings to support blended funding

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.

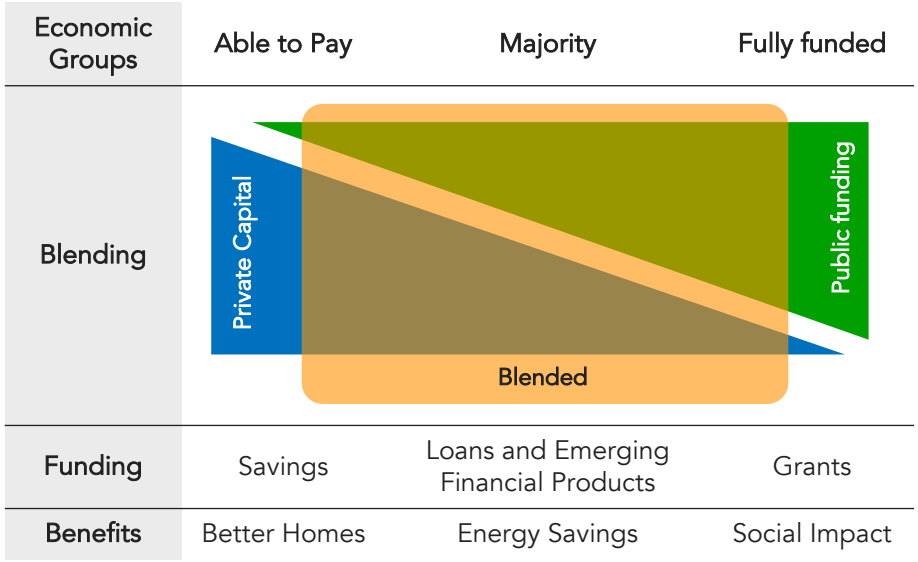


Figure illustrating how to majority of homeowner will require a blended of private and capital finance and the range of funding and benefits associated with different economic groups.

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.

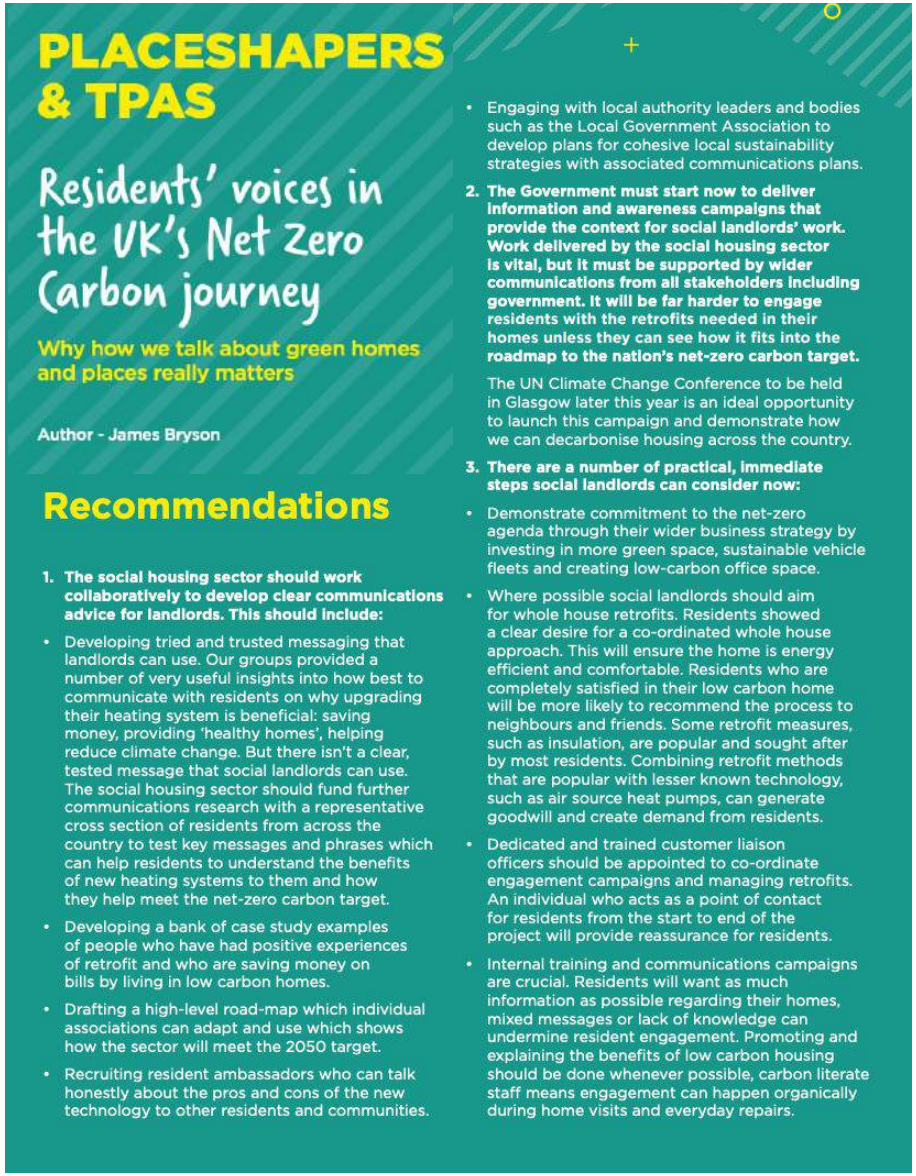
Depending on the measures needed, there may also be concerns around disruption, and following the Grenfell tower tragedy some residents will justifiably be nervous about the safety and the quality of the retrofit project. Engaging residents on the details of what will be included in the works and the 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

1. **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.
2. **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.
3. **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 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 10%-20%.

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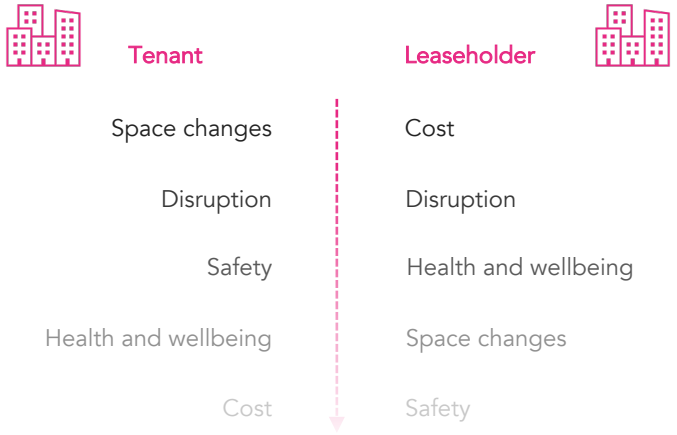


Example hierarchy of priorities - think about how the needs of different residents are to be addressed in the communication strategy on retrofit measures.

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.

Action 16 Activity 16.3 > Liaise with other registered social landlords to coordinate actions on retrofit

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

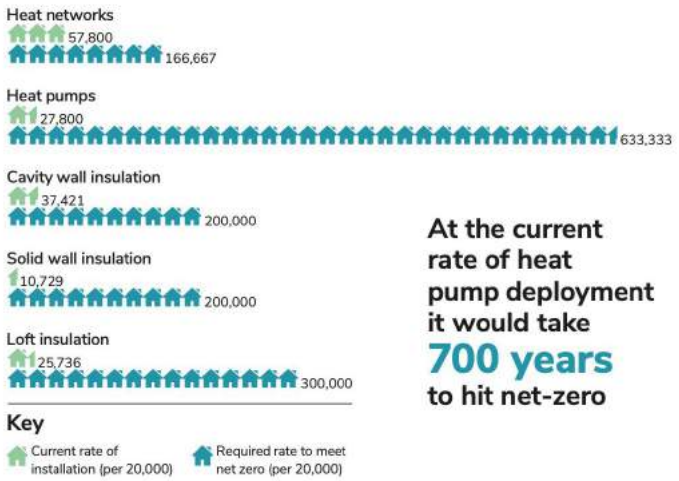
An analogy could be established with the efforts undertaken by local authorities over the last 20 years to encourage recycling. Similarly to that challenge, it is obvious that engaging only with social housing tenants and leaseholders would be insufficient. If insulation and heat pump installation rates 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.



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 then with the retrofit process.

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

Produce advice for tenants on their rights, their options, and how to select energy efficient properties (e.g. via the 'advice for renters' GLA webpage).

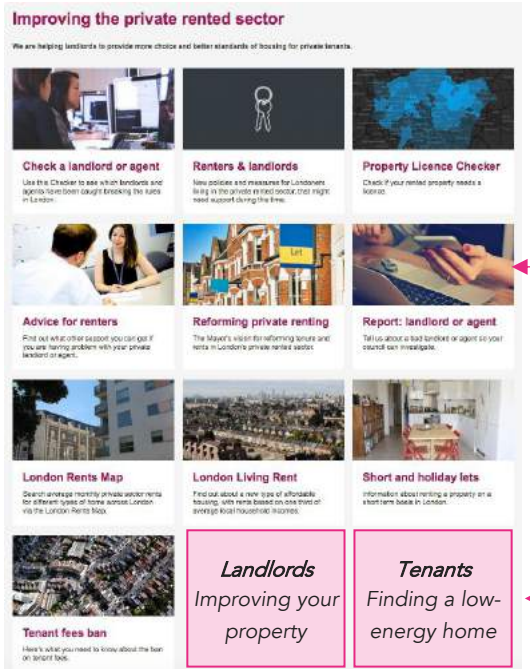
Create an energy use disclosure: Households could submit data on a voluntary, anonymised basis. This would help them become more aware of energy use and the industry to gather much needed data.

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.

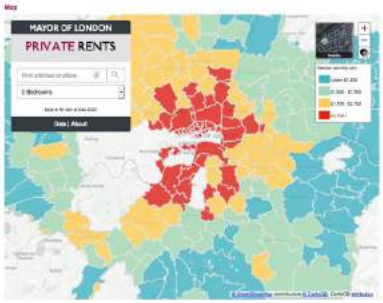
The Boroughs could also work with the London Landlord accreditation scheme to make energy efficiency an accreditation criterion.

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.

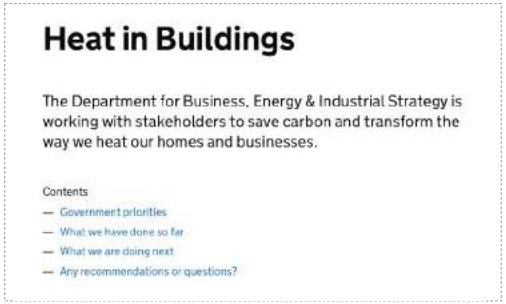
For the private rented sector, providing long-term clarity on the trajectory for Minimum Energy Efficiency Standards (MEES) to inform landlords and guarantors would be very beneficial, and this should reflect much needed reforms to SAP and EPCs.

More and better designed funding for all tenures

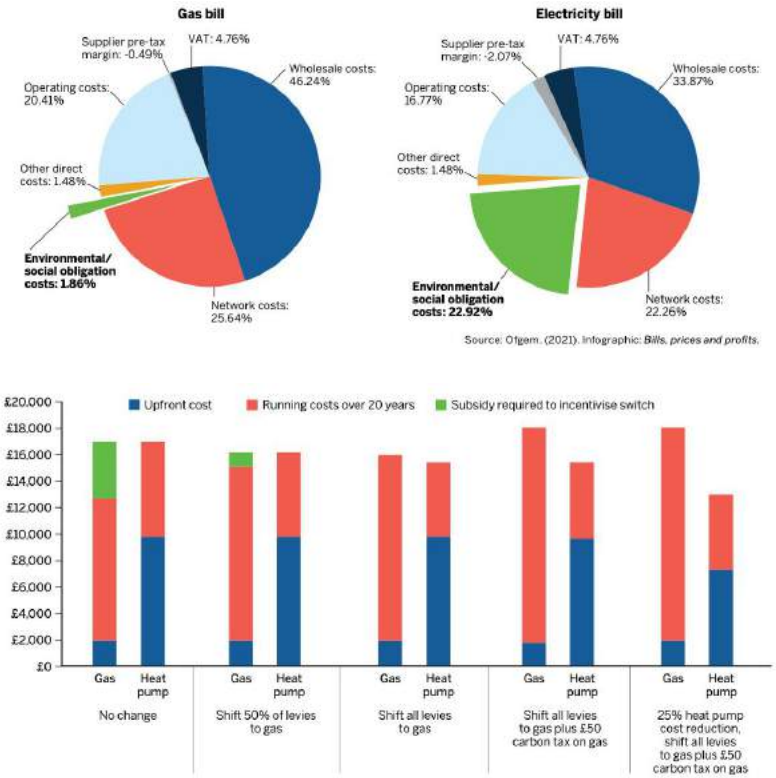
Most government support schemes for retrofit have generally failed due to the poor design and spending timescales, with disastrous consequences. This should stop and the Government should engage with local authorities to design better and more sustainable funding schemes. VAT reform for retrofit would 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.



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)

Action 19 Develop, implement and review the Action Plan together

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.

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.

RAFT
RETROFIT ACTION FOR TOMORROW

ELEMENTA

Etude

LONDON COUNCILS

Appendix | Key housing categories in London

CATEGORY	MOST FREQUENTLY RECOMMENDED MEASURES	NOTES
1A Terraces solid brick	• Solid wall insulation (more EWI than IWI) • Window upgrades • Individual heat pumps • Roof PV	EWI may be hampered by physical features such bay windows or by desire to maintain streetscape.
1B Terraces solid brick in conservation areas	• Solid wall insulation (more EWI than IWI) • Window upgrades • Individual heat pumps	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	• Solid wall insulation (more EWI than IWI) • Window upgrades • Individual heat pumps • Roof PV	EWI may be hampered by physical features such bay windows or by desire to maintain streetscape.
2B Non-terraces solid brick in conservation areas	• Solid wall insulation (more IWI than EWI) • Window upgrades • Individual heat pumps	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.	• Solid wall insulation (more EWI than IWI) • Window upgrades • Individual or communal heat pumps • Vertical PV	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	• Solid wall insulation (more IWI than EWI) • Window upgrades • Individual heat pumps	EWI likely to be rarely possible.
4 Homogenous housing estates (solid or cavity or system)	• EWI and CWI • Window upgrades • Individual or communal heat pumps • Roof PV	Likely that this group may break down into more archetypes with specific challenges.
5 Suburban cavity semis/detached with gas boilers	• CWI • Window upgrades • Individual heat pumps • Roof PV	Careful detailing between windows and CWI important as possible cold bridge.
6 1950s to 1975 system/cavity built blocks not communal heating	• CWI and EWI • Window upgrades • Heat pump or direct electric • Vertical PV	Individual heat pumps may sometimes be hard to install for mid level flats
7 1950s to 1975 system/cavity built blocks with communal heating	• Community heat pump • Vertical PV • CWI	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	• Individual • Heat pumps or direct electric with some fabric measures to support	Locating heat pumps may be challenging
9 1983s to 2002 mid-rise flats with gas heating	• Individual or communal heat pumps • Vertical PV	Locating heat pumps may be challenging
10 Houses built after 2007 (no fabric needed)	• Individual heat pump • Roof PV	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)	• Individual or communal heat pumps • PV	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

City of Westminster

Climate Action, Housing and Regeneration Policy and Scrutiny Committee

Date:	6 June 2023
Classification:	General Release
Title:	**2023/2024 Work Programme**
Report of:	Head of Governance and Councillor Liaison
Cabinet Member Portfolios:	Cabinet Member for Housing Services and Cabinet Member for Climate Action, Regeneration and Renters
Wards Involved:	All
Policy Context:	All
Report Author and Contact Details:	**Linda Hunting** lhunting@westminster.gov.uk

1. Executive Summary

1. This report asks the Committee to discuss topics for the 2023/2024 work programme. The proposals set out in Appendix 2 have been developed in consultation with Members, senior officers and members of the Executive (Cabinet) on their plans for the year ahead to ensure scrutiny is focused on those areas where it may have most impact.

2. Meeting Dates for the 2023/2024 Municipal Year

2.1 The Committee is advised that the next scheduled meeting dates for the 2023/2024 year are:

- 19 July 2023;
- 12 September 2023;
- 30 November 2023;
- 12 March 2024; and
- 22 April 2024.

3. Background

3.1 The Policy and Scrutiny team has been supporting the Chair and Committee Members to consider the work programme for the next municipal year. The process for this included; consultation with the Cabinet Members, consultation with Executive Directors and relevant Heads of Service, following up on previous items and commitments from previous meetings, consideration of forward plans in the Cabinet Portfolios and challenges identified across the Directorates.

3.2 The aim of this process has been to culminate in a work programme which:

- Focuses on what is important;
- Focuses on areas where performance might be improved;
- Focuses on services which are important to residents;
- Focuses on where scrutiny can make a difference and add value;
- Proactively feeds into policy development by contributing to pre-tender considerations or strategy development for example; and
- Uses the insight of backbench Members to act as critical friend to services of the City Council and our partners thereby enabling good governance and excellent services.

4. Work Programme for 2023/24

4.1 The Committee is asked to consider the work programme for the municipal year, 2023/2024, set out in Appendix 2. The Committee is requested to discuss the proposed topics listed as well as provide comments and suggestions.

4.2 When considering the work programme, and agreeing an overall programme of scrutiny activity, the Committee should have regard to whether the work programme is achievable in terms of both Officer and Member time, taking into account that the Committee is scheduled to meet six times per year. Members are also reminded that it is advisable to hold some capacity in reserve for any urgent issues that might arise.

4.3 Each Committee has discretion to establish Task Groups to examine key issues in more detail and also to commission Single Member Studies. The Committee is asked to consider whether they would like to establish a Task Group or commission a Single Member Study. The Committee should be advised that both Members and Officers will only be able to successfully take part in and support a finite number of Task Groups at any one time.

If you have any queries about this report or wish to inspect any of the background papers, please contact Linda Hunting.

lhunting@westminster.gov.uk

Appendix 1: Terms of Reference
Appendix 2: Work Programme
Appendix 3: Action Tracker

CLIMATE ACTION, HOUSING AND REGENERATION POLICY AND SCRUTINY COMMITTEE

COMPOSITION

7 Members of the Council (4 Majority Party Members and 3 Opposition Party Members).

TERMS OF REFERENCE

(a) To carry out the Policy and Scrutiny functions, as set out in Chapter 4 of the Constitution in respect of matters relating to all those duties within the terms of reference of the Cabinet Member for Cabinet Member for Housing Services and the Cabinet Member for Climate Action, Regeneration and Renters.

(b) To carry out the Policy and Scrutiny function in respect of matters within the remit of the Council's non-executive Committees and Sub-Committees, which are within the broad remit of the Committee, in accordance with paragraphs 18.2 and 18.3 as well as section 19 of Chapter 4 of the Constitution.

(c) Matters within the broad remit of the Cabinet Members referred to in (a) above which are the responsibility of external agencies.

(d) Any other matter allocated by the Westminster Scrutiny Commission.

(e) To have the power to establish ad hoc or Standing Sub-Committees as Task Groups to carry out the scrutiny of functions within these terms of reference.

(f) To scrutinise the duties of the Lead Members which fall within the remit of the Committee or as otherwise allocated by the Westminster Scrutiny Commission.

(g) To scrutinise any Bi-borough proposals which impact on service areas that fall within the Committee's terms of reference.

(h) To oversee any issues relating to Performance within the Committee's terms of reference.

(i) To have the power to scrutinise those partner organisations under a duty to that are relevant to the remit of the Committee.

(j) To consider any Councillor Calls for Action referred by a Ward Member to the Committee.

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Appendix 2 - Climate Action, Housing and Regeneration Policy and Scrutiny Committee Work Programme 2023/24

ROUND 1 7 June 2023		
Agenda item	**Purpose**	**Responsible Cabinet Member and Executive Director**
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
Retrofitting in Westminster	To review the Council's initiatives that seek to improve the processes of retrofitting in Westminster. To include the Retrofit Taskforce, MEES Plus Pilot, the Sustainable City Charter, stakeholders, and progress.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Council Owned Housing Stock Retrofitting Plans	To review the Council's retrofitting plans for council-owned properties. To include plans for working with residents, contractors and costs, the timeline of works across the Westminster, and a review of the retrofit show home.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Work programme	To review the work programme in light of events and recent discussions.	Linda Hunting, Policy and Scrutiny Advisor

ROUND 2 19 July 2023		
Agenda item	**Purpose**	**Responsible Cabinet Member and Executive Director**
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing

		Amy Jones, Director of Environment
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
The Housing Bidding and Allocation Process	To review the current procedures and policies for the housing bidding and allocation of council-owned housing for Westminster residents.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
The Future of Westminster Commission - Housing Review	To consider the Future of Westminster Commission reviews and recommendations of the Council's delivery of housing to Westminster residents.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
Green Bonds and Community Energy Projects	To review the Green Bonds initiative. To include the annual emissions performance reporting of the Council to date, case examples and information about resident engagement community energy projects that benefit residents, and the Carbon Offset projects delivery.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Work programme	To review the work programme in light of events and recent discussions.	Linda Hunting, Policy and Scrutiny Advisor

ROUND 3 12 September 2023		
Agenda item	**Purpose**	**Responsible Cabinet Member and Executive Director**
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
Rough sleeping, homelessness, and the use of hostel accommodation across Westminster.	To review the Council's approach to rough sleeping, homelessness, and the use of hostel accommodation. To include; recommendations, strategies, trends, lessons learned, outreach, and data.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing

Work programme	To review the work programme in light of events and recent discussions.	Linda Hunting, Policy and Scrutiny Advisor

ROUND 4 30 November 2023		
Agenda item	**Purpose**	**Responsible Cabinet Member and Executive Director**
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
The Private Rented Sector Charter	To review the Council's plans to improve property and management standards in the private rented sector, increase opportunities for low-income households, and improve communications across the sector.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing
The Climate Emergency Action Plan	To review progress of the Council's Climate Emergency Action Plan, including, actions for reducing carbon emissions across the Westminster, and working with businesses and residents.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Work programme	To review the work programme in light of events and recent discussions.	Linda Hunting, Policy and Scrutiny Advisor

ROUND 5 12 March 2024		
Agenda item	**Purpose**	**Responsible Cabinet Member and Executive Director**
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment

Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
The Infill Programme	To examine the Council's plans for underused and empty areas on our estates and the redevelopment and building of new properties.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing
Church Street Regeneration Programme	To review the Church Street programme of regeneration the planning, procurement, and delivery.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing
Work programme	To review the work programme in light of events and recent discussions.	Linda Hunting, Policy and Scrutiny Advisor

ROUND 6 22 April 2024		
Agenda item	**Purpose**	**Responsible Cabinet Member and Executive Director**
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing Amy Jones, Director of Environment
Cabinet Member Q&A	To update the Committee on key areas of work within its remit and the Cabinet Member's priorities.	Councillor Liza Begum Cabinet Member for Housing Services Debbie Jackson, Executive Director of Growth, Planning and Housing
Supported Housing and Sheltered Housing	To review the current supported housing provision and the Council's polices for sheltered housing and identify the shortfalls and consider what can be done to address these and what interventions will be required in the future for Westminster residents.	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters Debbie Jackson, Executive Director of Growth, Planning and Housing
Work programme	To review the work programme in light of events and recent discussions.	Linda Hunting, Policy and Scrutiny Advisor

Unallocated items – this may either be substituted in for a substantive item elsewhere in the year or may be rolled over for future municipal years.

Councillor Liza Begum Cabinet Member for Housing Services	Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters
Housing Anti-Social Behaviour - An update on the review of housing Anti-Social Behaviour procedures.	Westminster Builds - The Budget Scrutiny Task Group recommended the Committee review this in more detail and provide comments.
Housing Solutions Service.	The Climate Assembly – To review the progress which has been made by the Assembly.
	The Biodiversity Strategy - To consider climate action education in schools.
	The Carbon Impact Evaluation Toolkit
	To consider the Council's procurement of contracts that have a direct impact on climate action and regeneration.

Proposed Briefing Sessions:

Councillor Liza Begum Cabinet Member for Housing Services	Purpose	Proposed Date
Mould and Condensation	To review the Council's plans to address mould and damp in properties and considering these issues, also receive feedback from Housing Associations and RA's how this is being tackled.	TBC
Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters	Purpose	Proposed Date
Green Doctors	To provide Members with a briefing session or a Member Development Training session to gather information and review the service.	TBC

Forthcoming Written Reports/ Updates:

Councillor Liza Begum Cabinet Member for Housing Services	Purpose	Proposed Date
RAPID App Technology	To review the new technology RAPID introduced by the Council to manage Council tenant information and communication and its functionality	July 2023
Fire Safety Regulations	To update the committee on the current regulations.	Sept 2023
Intermediate Housing Regulations	To update the committee on the current regulations.	Nov 2023
Housing Repairs Improvement Progress Review	To review the actions taken to improve housing management and the delivery of an effective and responsive repair system	April 2024
Councillor Matt Noble, Cabinet Member for Climate Action, Regeneration and Renters	Purpose	Proposed Date
TBC	TBC	TBC

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Appendix 3 - ACTION TRACKER
Climate Action, Housing and Regeneration Policy and Scrutiny Committee

ROUND 2 18 October 2022			
Agenda Item	**Action**	**Status/ Follow Up**	**Comments**
Item 7 Work Programme	The formation of a Biodiversity Task Group - Councillor Cara Sanquest is to lead this work.	In progress	Chair put task groups on hold in Dec 22 until the 2023/ 24 year.

ROUND 3 4 November 2022			
Agenda Item	**Action**	**Status/ Follow Up**	**Comments**
Item 5 Cabinet Member Updates Policy and Scrutiny Portfolio Overview: Cabinet Member for Housing Services	That information will be provided to the Committee regarding the number of additional properties that will be required as a result of the waiting lists and the Allocation Policy.	Completed	This item and below will now come to scrutiny in July 23.
	That information will be provided to the Committee about how the Allocation Policy is currently working for the 10-year residency point scheme and how residents are informed, would apply, and are granted points at 10 years and how the waiting list for housing stock may be affected following the legal challenge of WCC Allocations Scheme.	Completed	The review of the Allocations Scheme has started and this programme of work will be led by the recommendations of the Housing Commission and decisions made by Cllr Begum.
	That information be provided to the Committee on how much Government Local Authority (GLA) funding is expected for the Queen's Park Court infills site and if there is any further funding available for other infill projects.	In progress	

ROUND 5 2 March 2023			
Agenda Item	**Action**	**Status/ Follow Up**	**Comments**
Item 5 Cabinet Member Updates Policy and Scrutiny Portfolio Overview: Cabinet Member for Housing Services	That the most recent rough-sleeping count figures to be shared with the committee, including by Ward.	Completed	Information provided in April CM update.
	Information to be provided to the committee (when available) on the plans for the Bruckner St housing surgery.	In progress	
	Information to be sent to the committee about the opening of the office at the Community Hubs Programme.	In progress	Officers to send once the community hubs programme is finalised.
	That details be provided to the Committee (once available) about Leaseholder Service Charges.	In progess	Officers will distribute when released.
	Details to be provided of RAs and contact details of their specific Housing Officers for Members.	In progress	
	Committee to be briefed about how the mobile security pilot went, the lessons learned, and the intelligence gathered, after the pilot is completed and before the possible extension is up for further consultation.	In progress	Neil Whiteman has agreed to update the committee when the pilot has ended and officers can evaluate the data and lessons learned. Estimated September 2023.
	The Committee to be sent updated comparative figures for Anti-Social Behavior reporting.	Completed	Members were updated in the April CM report.
Item 5 Cabinet Member Updates Policy and Scrutiny Portfolio Overview:	Officers to provide the details of the number of people employed by Green Doctors to the committee.	Completed	Members were provided information
	Officers to provide the information to the committee about the overall cost to the Council of the Green Doctors service and who is responsible for this contract.	Completed	As above.

Cabinet Member for Climate Action, Regeneration & Renters	Information to be provided to the committee about how referrals to the Green Doctors service are being made and how the service is being promoted to residents in order to maximise the number of appointments available.	Completed	This was provided in the April CM update and by officers.
	Information to be provided about smart meters becoming a pre-paid meter in residents' homes and whether this is an automatic transfer when a Smart Meter is installed.	Completed	Members were updated at the April meeting in the CM report.
	Information to be shared with the committee about the Councils plans to ensure the delivery of the Truly Affordable Housing Strategy over the next 10 years.	In progress	Members were provided with some information during the February meeting and will be updated in due course with developments by the CM.

ROUND 6 19 April 2023			
Agenda Item	**Action**	**Status/ Follow Up**	**Comments**
Item 4 Cabinet Member Updates Policy and Scrutiny Portfolio Overview: Cabinet Member for Housing Services	Requested that the reports for Anti-Social Behaviour be broken down further in the reports to include wards or specific estates to enable Members a clearer understanding of the figures.	In progress	Update provided from Rochelle Largan as follows: The reports are managed by our performance and intelligence team – whilst I have access to the data, to produce a report to share this needs to be made as a specific request which has been requested for as soon as possible. Members updated 24.05.23
	Requested information about how the Council are proceeding with Anti-Social Behaviour cases, how this may affect evictions and further future applications for housing, and what actions are being taken by the Council against ASB.	In progress	Update provided 18.05.23 from Rochelle Largan as follows: HSS are the service who assess each homelessness or housing application and then a caseworker would investigate it. This could relate to eviction for ASB, rent arrears, or something else. Generally, a person evicted due to their own cause (such as ASB) would be considered “intentionally homeless” and therefore there is no duty to provide further housing. There are some scenarios where this isn’t as straight forward. Additional officers are being contacted for further information. Members updated 24.05.23
	Requested to be updated on the Relief Duty Households and the effects on the housing register regarding allocations if a resident is housed privately and the Rental Support Fund and specific information	In progress	Will be provided in the CM update in June.

	around leaseholders and their inclusion in that fund or support for them, including information on the funds that had been paid out.		
	Requested that the figures for the total and types of repairs in the report are checked further prior to be being presented to the Committee, and also, to include the jobs that were temporary measures and required further work.	In progress	Will be provided in the CM update in June.
	Information to be provided about Bruckner Street becoming a Housing Services Drop-In office and any changes.	In progress	
	Requested further information about No Mow May and the initiatives to improve community cohesion and greening in estates.	In progress	Will be provided in the CM update in June.
	Requested more detailed data and longer lead times be provided in the Member reports such as, housing repairs, anti-social behaviour, and mould and damp, to enable a fuller context and better understanding of the issues present.	In progress	
	Requested how many residents would receive support and within what band of the Rental Support Fund.	In progress	Will be provided in the CM update in June.
Item 5 Cabinet Member for Climate Action, Regeneration & Renters	Information to be shared with the committee about the investors of the Green Bond and whether they are in or out of borough.	Completed	Details provided by Damian Hemmings and Patrick Rowe. Members emailed 24.04.23
	Requested information about the cost of the Green Doctors, how that cost is calculated, and how the Council measures whether the assistance to residents is effective, efficient, and valid, including, what types of information and advice are provided to residents.	Completed	Details provided by Damian Hemmings and Matthew Williamson. Members emailed 22.05.23
Item 6 PDHU Strategic Options Paper	Members requested a copy of the presentation provided by officers at Committee.	Completed	Information provided by Chris Spicer and Anthony Jones and emailed to Members 09.05.23