

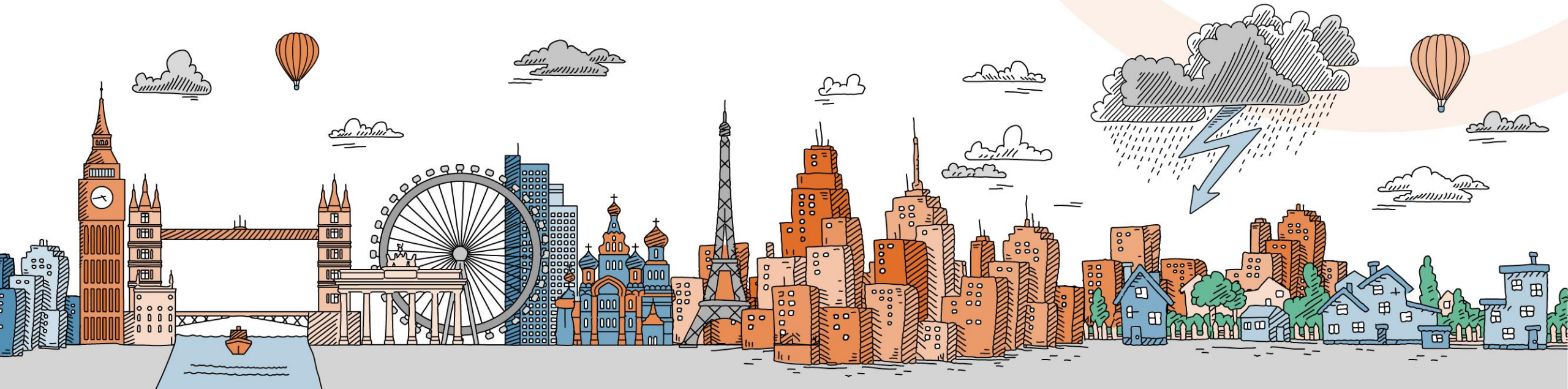
Decarbonising Domestic Heating

Professor Maria Sharmina, Co-Director Policy@Manchester

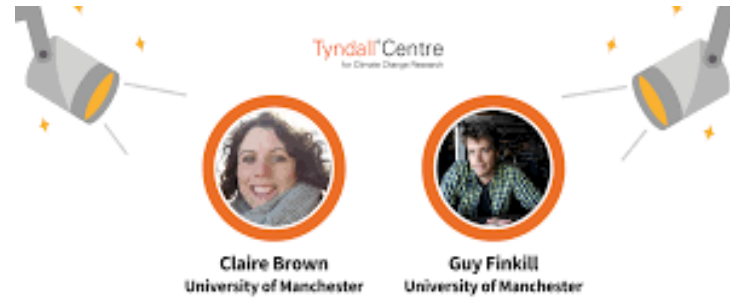
December 2024

Decarbonising Heat in the UK

Claire Brown MLPM MEIMA CEnv FHEA
PDRA – UMRI - TANZ



Who am I?



TYNDALL SPOTLIGHT



Introduction

Housing in the UK is going through a period of heightened public interest and challenge.

UK homes are damper and poorer than ever

Moisture management should be a top priority for all building refurbishment and retrofit projects, according to the Building Engineering Services Association (BESA).



Soaring rates of asthma and other respiratory conditions triggered by unprecedented levels of damp and mould in UK homes could be tackled through improving the ventilation and heating and developing training and competence schemes for ventilation installers and maintainers, the Association said.

[UK homes are damper and poorer than ever \(heatingandventilating.net\)](https://heatingandventilating.net)

Six times more newly homeless families than new social houses, England data shows

Councils forced to put people in expensive temporary accommodation as only 8,386 social homes built in 2022-23



📷 Housing activists protesting in Peckham, south London, calling for safe, decent and secure housing at reasonable rents for all. Photograph: Peter Marshall/Alamy

[Six times more newly homeless families than new social houses, England data shows | Social housing | The Guardian](https://www.theguardian.com/social-housing)

Introduction



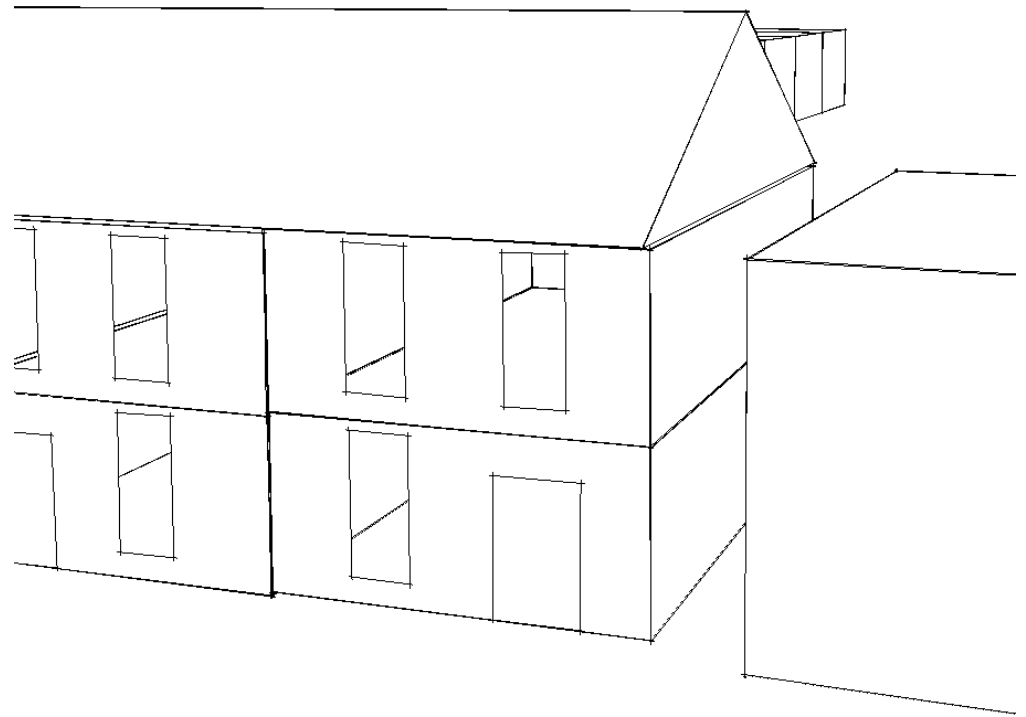
Addressing heating and specifically decarbonisation of heat in UK social housing requires a **multifaceted approach**, considering technological advancements, policy frameworks, socio-economic factors, and the impact of climate change.



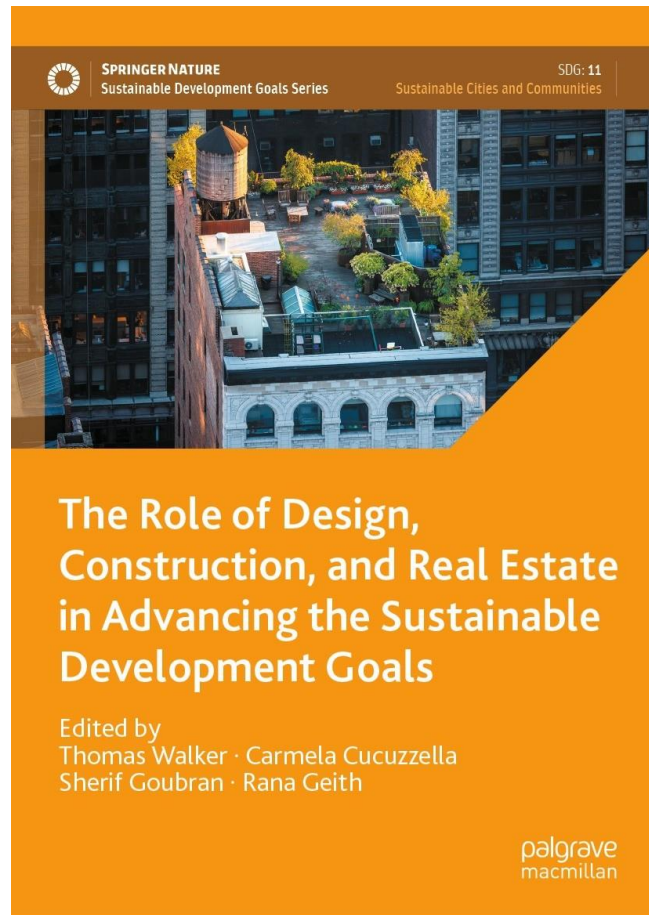
Collaboration between government agencies, housing providers, and the community is going to be **crucial** for developing effective and inclusive strategies.

Basis for research

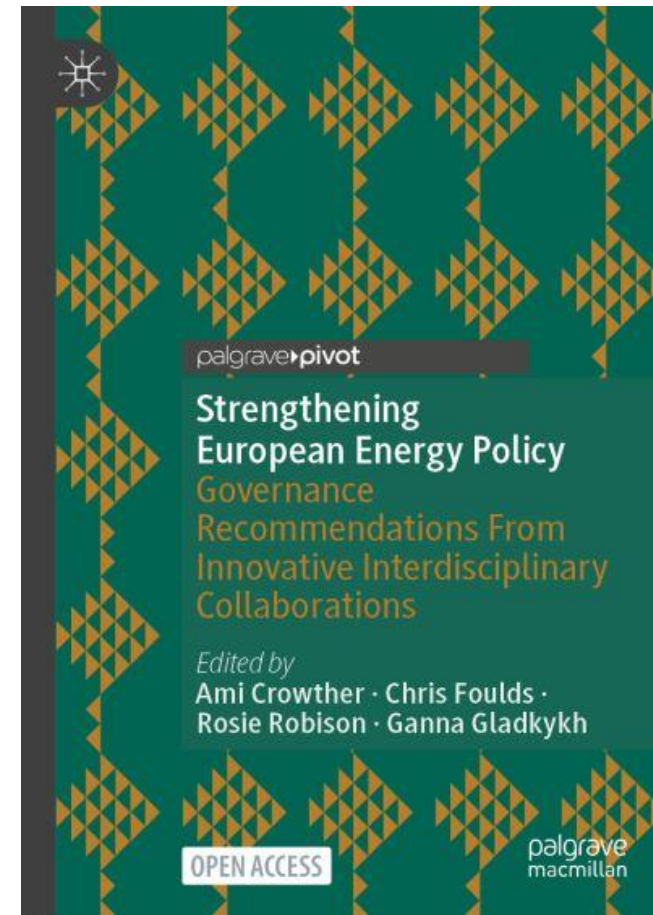
- Housing is an important topic when addressing the issue of **climate change**—global greenhouse gas emissions must be reduced by 45% by 2030.
- Housing is a **key determinant of health**. This includes how to decarbonise our home heating.



Outputs



Brown, C. (2023). Solar Shading Design and Implementation in UK Housing as a Tool for Advancing Sustainable Development. In: Walker, T., Cucuzzella, C., Goubran, S., Geith, R. (eds) *The Role of Design, Construction, and Real Estate in Advancing the Sustainable Development Goals*. Sustainable Development Goals Series. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-28739-8_5

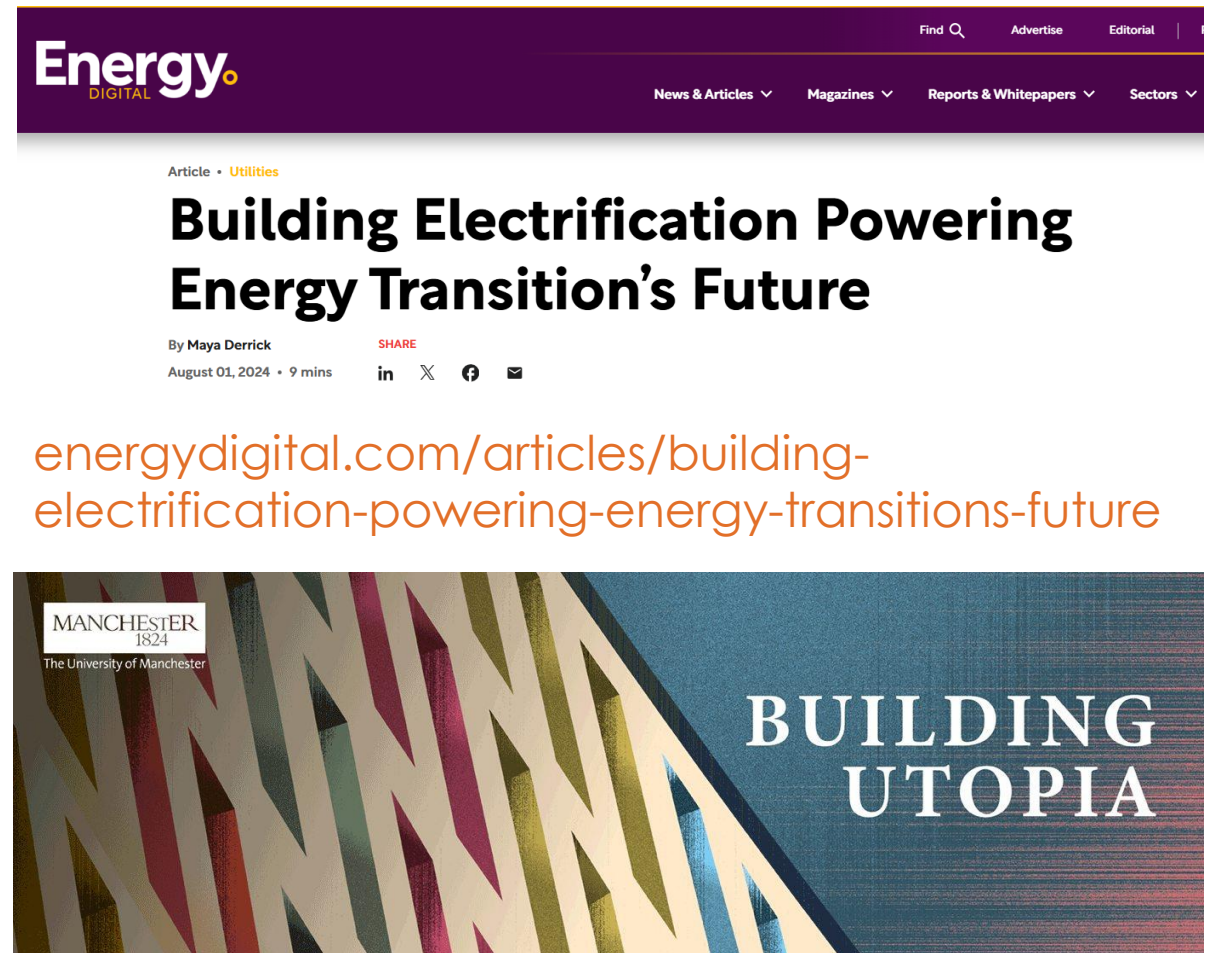


Calver, P., Crowther, A., Brown, C. (2024). Facilitate the Development of Energy Literacy Amongst Citizens to Support Their Meaningful Participation in the Energy Transition. In: Crowther, A., Foulds, C., Robison, R., Gladkykh, G. (eds) *Strengthening European Energy Policy*. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-66481-6_5

Other publications



theconversation.com/how-new-social-housing-can-help-fight-climate-change-155996



www.policy.manchester.ac.uk/publications/building-utopia

Climate-resilient homes.



Climate-resilient homes are those units which will be able to function according to design in a changing climate. This will include passive solutions like shading.



Many homes built today will be vulnerable to overheating risk based upon 2050 and 2080 projected climate scenarios.



Occupant fuel affordability and human health is at the forefront of this concern.



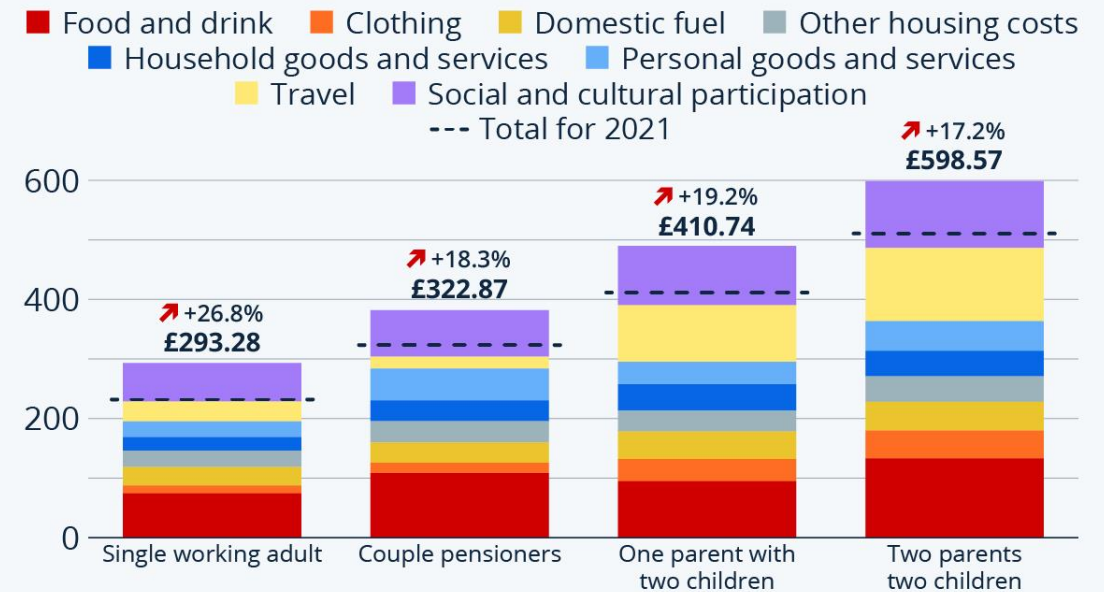
Homes can be designed and built to recognise the most likely climate in a future warming state and include a decarbonised heating system.

Social Housing

- In social housing, we know that people can already not afford to heat their homes due to increased fuel prices, rent increases and the cost-of-living uplift.
- Switching away from gas to an electrical source, is adding to the cost burden for residents. Hence, adding in part to the resistance to change.
- Putting challenge into decarbonising heating.

The Rising Cost of Living Is Hitting All Groups

Amount needed each week to reach minimum standard of living in the UK in 2022



* Excluding rent and childcare

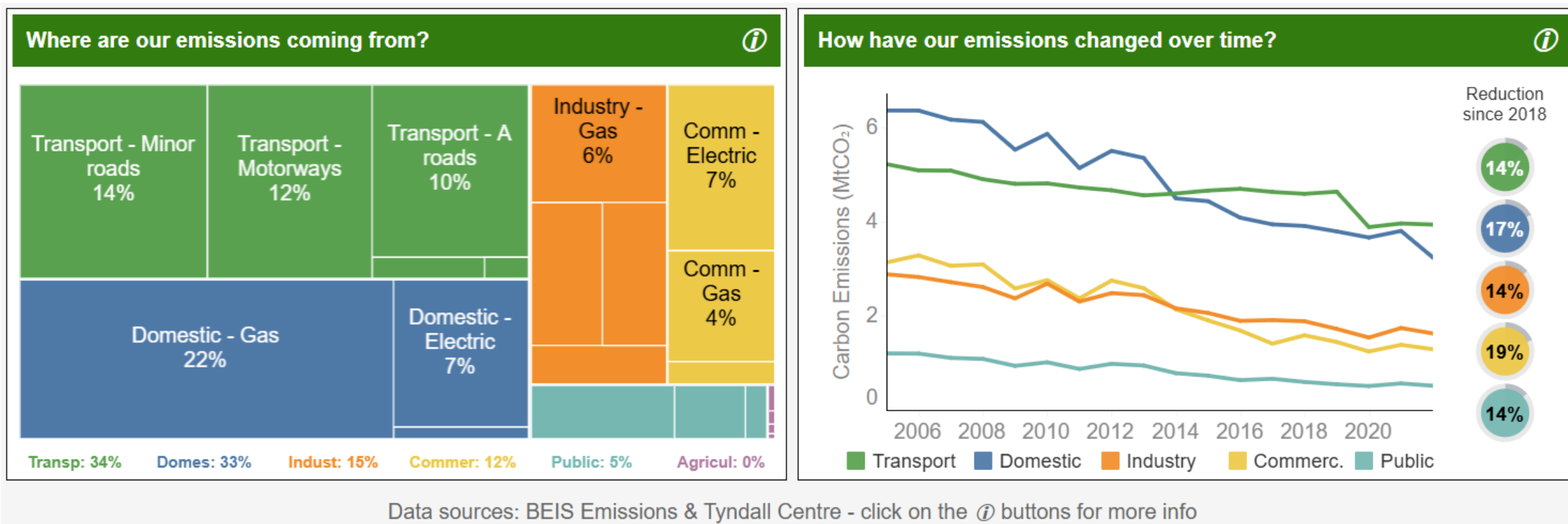
Source: Joseph Rowntree Foundation



statista

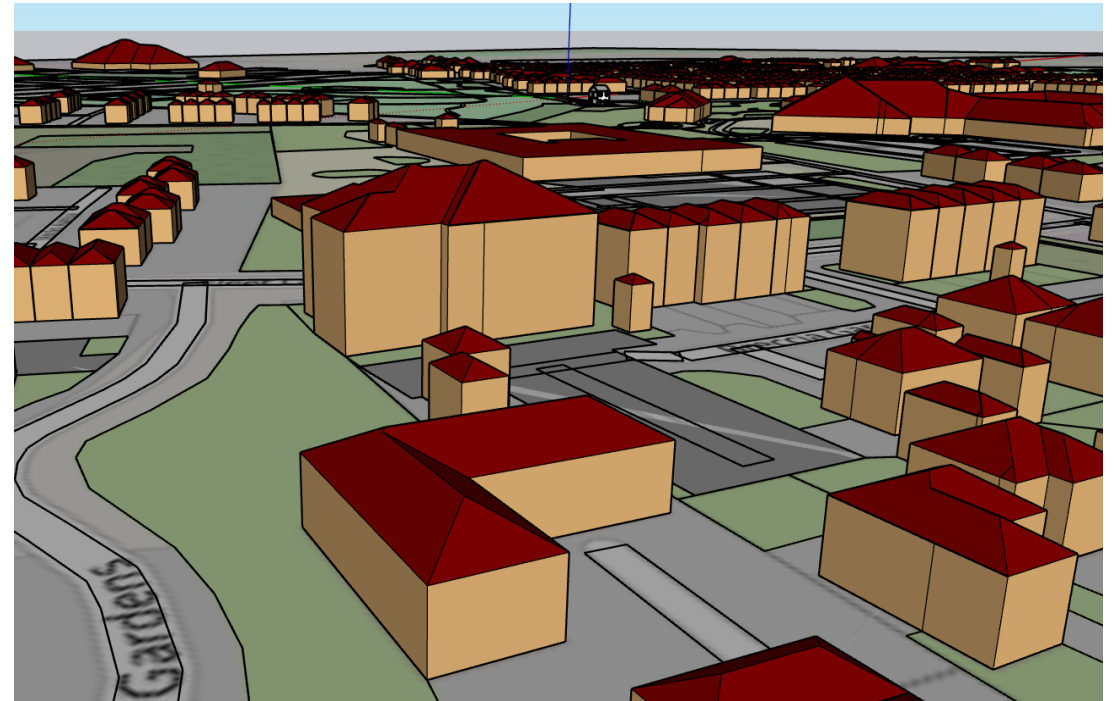
www.statista.com/chart/28259/cost-of-living-crisis-impacts-in-uk/

Decarbonising GMCA



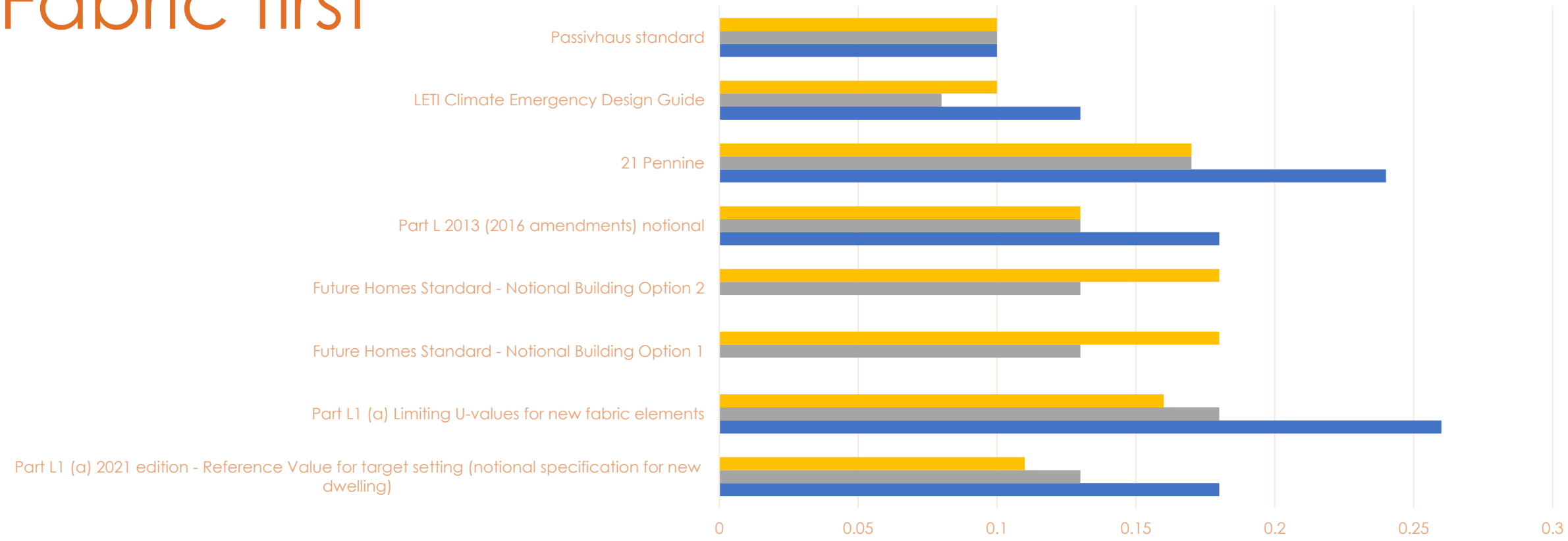
Truly Affordable Net Zero Homes

- Greater Manchester is aiming to build 75,000 new homes in the city-region.
- This includes at least 10,000 truly affordable Net Zero homes.
- By building truly affordable Net Zero homes, Greater Manchester also aims to address the intertwined challenges of the climate crisis, housing shortages, and housing affordability.



Fabric first

U-value comparison



■ Roofs ■ Floors ■ External Wall

Interview insights:



“The policy process is the blocker”.



“So, when we had the code for sustainable homes, there was a trajectory to go towards zero carbon”.



“Sort of requirements for a new build that might be even sooner than 2025 to encourage developers to make that switch sooner”.



“So, we're still going backwards, even though it's 15 years after the Climate Change Act”.



“Their home to be warmer, comfortable, cooler in the summer and cheaper to run. You know, I think that that's a win-win for everyone and carbon emissions, but also the cost of living”.

Negative voices

Letters

The annoyance of noisy heat pumps at 2am

Martyn Taylor points to the irritating sound of heat pumps starting and stopping. Plus a letter from **John Lovelock** who reckons they will be prohibitively expensive to install in older properties

Brits forced to spend £22,000 ripping out gas boilers and installing heat pumps. 'Absurd'

SCRAPPING GAS BOILERS and forcing everyone to replace them with expensive electric heat pumps could cost homeowners more than £20,000 each and drive up their energy bills as well, experts warn.

By HARVEY JONES

BY 12.5am, Sun, Apr 24, 2022 | UPDATED: 13.46, Sun, Apr 24, 2022



BOOKMARK



Will hotter heat pumps win over homeowners?

2 January



Private Dwellings



www.boilerguide.co.uk/compare/types/boiler-vs-heat-pump

- For private dwellings, misinformation and a lack of trusted sources can be attributed to some of the lack of uptake in the Government Boiler Upgrade scheme.
- Mixed messages confuse consumers and tenants about whether a gas-based boiler is still suitable.
- A heat pump, combined with self-generation such as a roof-mounted PV provides a much more self-sufficient base for decarbonising heat and providing self-sufficiency for occupants.

Lived experience – communicating change



- Decarbonising our home.
 - Replacing a 12-year-old boiler
- Barriers to action
- Picking a trusted partner
- Boiler Upgrade Scheme funding (£7.5k)
- Awareness - disruption
- Perception of reduced emissions
- Reduced bills?
 - November 2023 - £215.81 (Variable – 29p kW) vs November 2024 - £214.49 (Cosy – 12p, 24p and 36p kW)
 - However – PV export was higher last year.

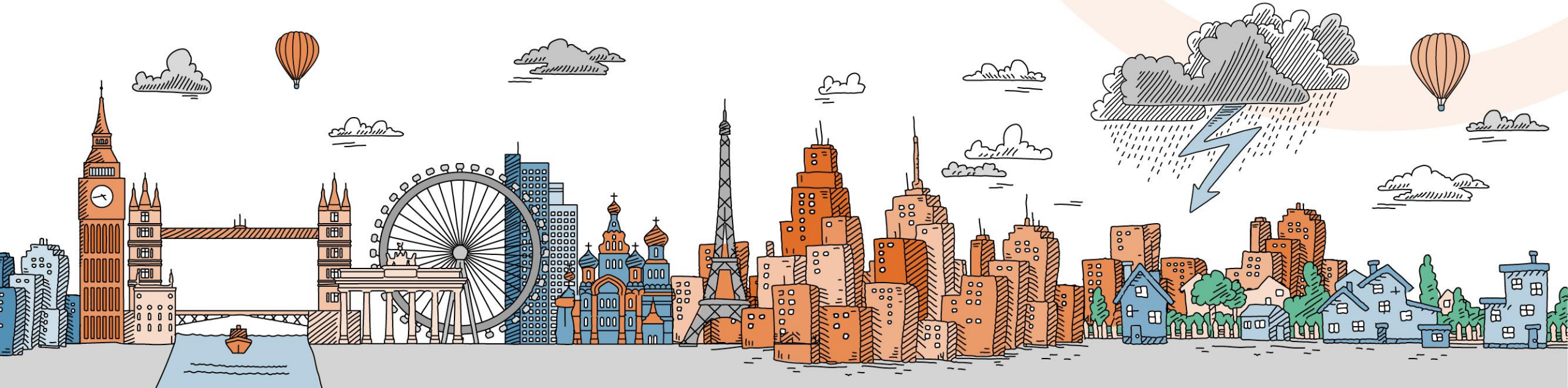
Policy recommendations and conclusion

- Prioritise Heat pumps as the **preferred** choice (but not the only choice) at scale for low-carbon heating to avoid mixed messaging.
- Introduce a new **rapid progression** framework to support the increased rollout of heat pumps in the UK including installers and manufacturers.
- Provide more **long-term certainty for grants** and incentivisation schemes to enable the social housing system to rapidly deploy this technology
- Address the issues around **energy tariffs** to support the transition away from gas and other fossil fuels and make it more financially beneficial to install electrified heating solutions.

Thanks for listening

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Bluesky: @climatebrown



Decarbonising Domestic Heating

Decarbonising Domestic Heating

Anees Mank
Programme and Policy Lead (Retrofit)
Greater Manchester Combined Authority (GMCA)



@GMGreenCity | #GMGreenCity

**GREATER
MANCHESTER**
DOING THINGS DIFFERENTLY

Local Energy Advice Demonstrator (LEAD)

- £2.14m programme run via the NW Net Zero Hub
- Operates from July 2023 to March 2025
- It connects existing offers via ECO4 / GBIS / LA Flex
- Provides face to face energy efficiency advice
- It's focus areas are:
 - Hard to reach residents
 - Hard to treat properties*... not to the exclusion of others*
- Delivered by 3 Local Authorities, 2 Social enterprises, 2 Private Businesses, and a Co-operative
- GMCA is accountable body
- Glide path to retrofit devolution under the post 2025 spending review

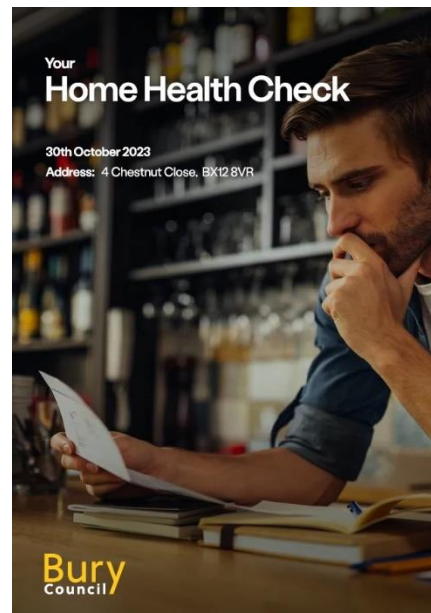




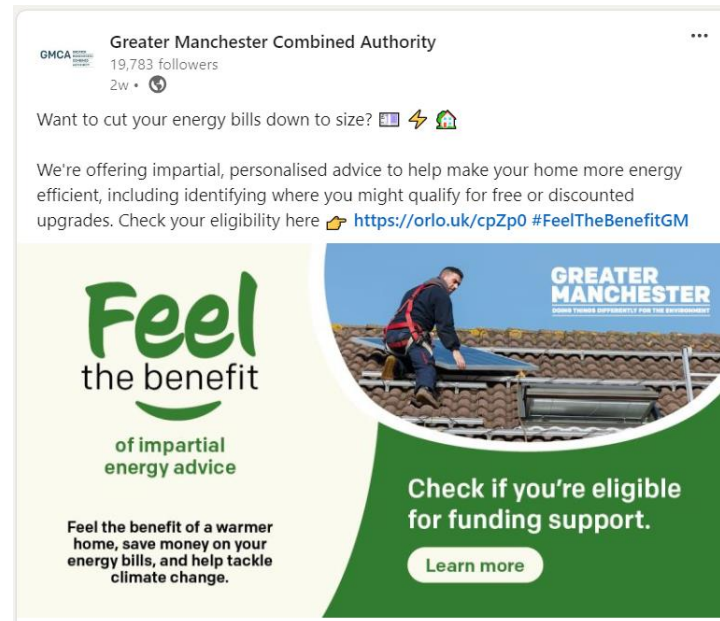
Bus adverts.



Billboard at Deansgate tram stop.



ThermaFY home assessment in Bury.



Social media post.

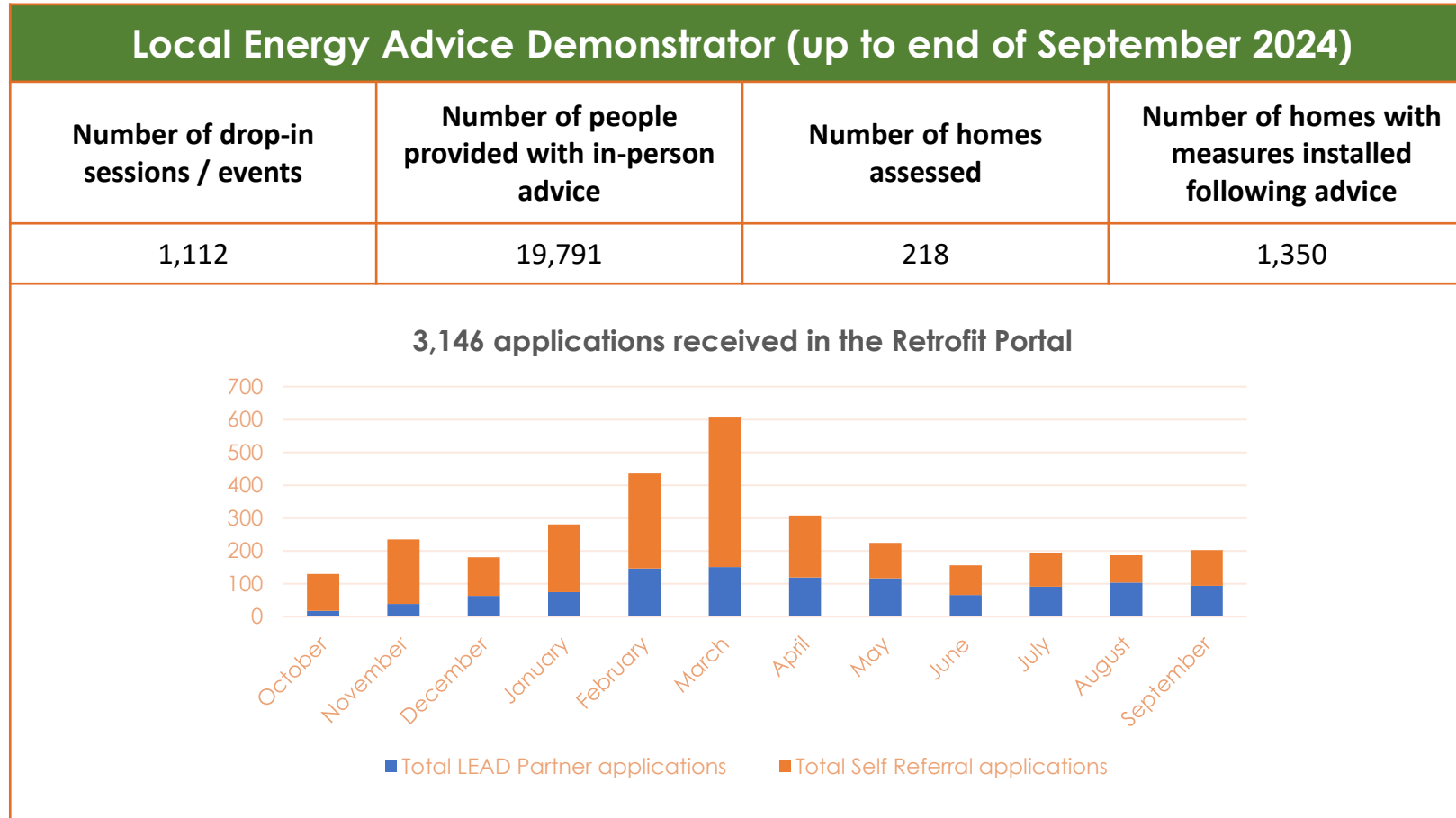


Flyer included in Bolton Council Tax mailout.



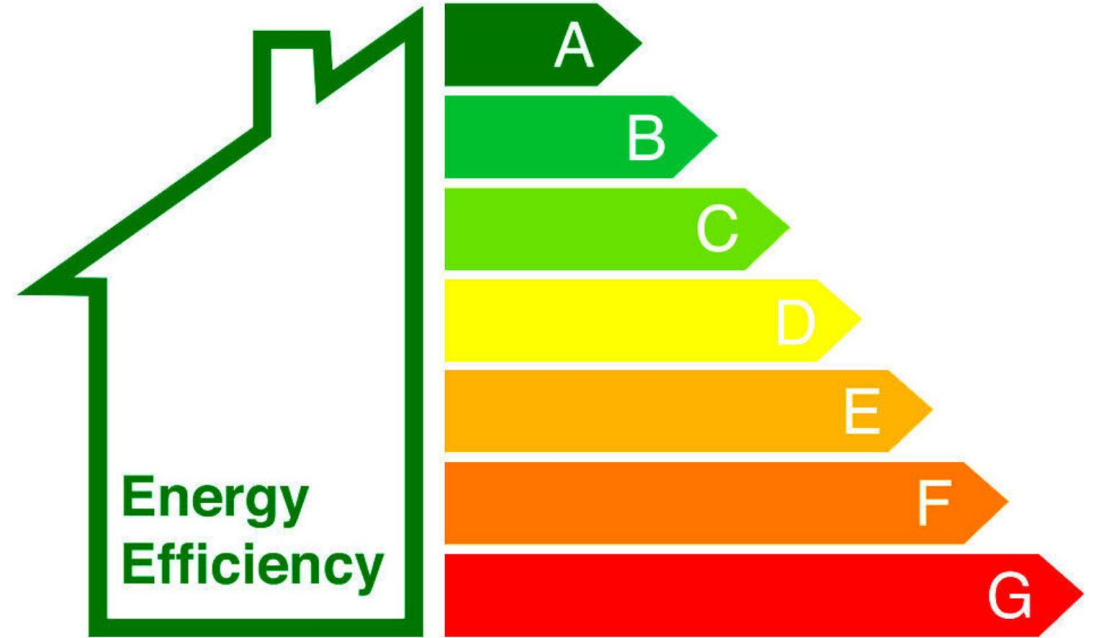
Translations into Arabic, Polish, and Urdu.

Local Energy Advice Demonstrator (LEAD)



Energy Company Obligation (ECO4)

- ECO4 provides £1bn per year from 2022-2026 through whole house retrofitting of energy efficiency and low carbon heating measures.
- Suppliers can deliver up to 50% of their obligation through Local Authority Flexible Eligibility.



Energy Company Obligation (ECO4)

- Published a [Statement of Intent](#) detailing three LA Flexible Eligibility routes for low income and vulnerable households:
 - Route 1: Combined household gross income below £31k/year.
 - Route 2: Proxy Targeting (e.g., IMD LSOA 1-3, Council Tax Reduction, Free School Meals).
 - Route 3: NHS referrals (e.g., cardiovascular condition, respiratory disease, limited mobility, or immunosuppression).

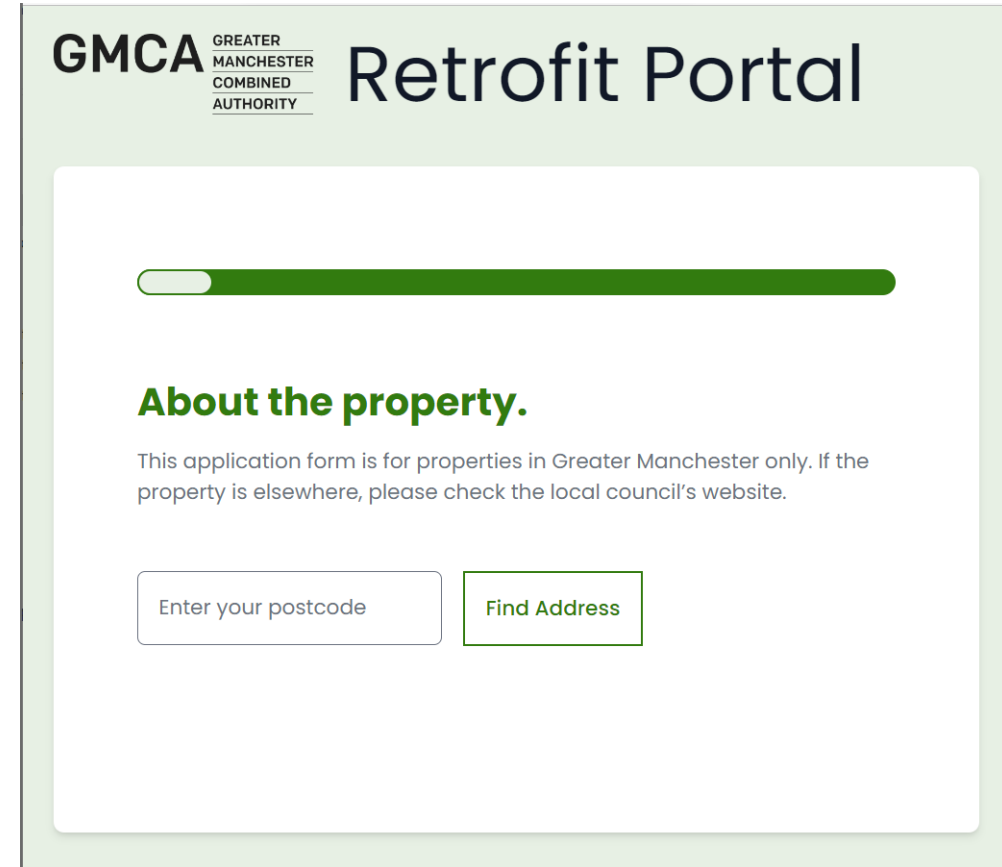
Energy Company Obligation (ECO4)

- Appointed three installers to deliver ECO4, GBIS, and LA Flex:
- [Improveasy](#) – Manchester, Stockport, Trafford.
- [Next Energy Solutions](#) – Bolton, Salford, Wigan.
- [0800 Repair](#) – Bury, Oldham, Rochdale, Tameside.



Energy Company Obligation (ECO4)

- Developed a Retrofit Portal to receive referrals from residents and partners (Districts, NHS, Citizens Advice, Energy Suppliers, etc.) including the ability to upload eligibility evidence.

A screenshot of the GMCA Retrofit Portal. The header features the GMCA logo (Greater Manchester Combined Authority) and the title 'Retrofit Portal'. Below the header is a green progress bar. The main content area is titled 'About the property.' and includes a note: 'This application form is for properties in Greater Manchester only. If the property is elsewhere, please check the local council's website.' At the bottom, there are two input fields: 'Enter your postcode' and 'Find Address'.

Energy Company Obligation (ECO4)

- Marketing in progress through targeted letters, leaflets, and adverts on social media and the transport network.
- Working with NHS GM to contact eligible patients through GP text messaging.

NextEnergy
Your Solution to NetZero
FREE HOME UPGRADES
ARE YOU INTERESTED?
ARE YOU ELIGIBLE?
CALL US ON **0800 021 3145**
OR SIMPLY SCAN THE QR CODE ON YOUR PHONE

Improveeasy
SEE IF YOU QUALIFY FOR **100% FREE ECO HOME UPGRADES IN UNDER 60 SECONDS!**
IS YOUR EPC RATING BETWEEN D-G?
YES **NO**
Trustpilot 4.8 (1,334 reviews) | I DON'T KNOW | Reviews 4.9 (140 reviews)

ENERGY FUNDING SERVICE
0800 REPAIR
ECO Government Funding Scheme
RE: Government Grant Scheme
Local Authority Flexibility
Helpline: 0161 883 3143
Monday - Friday 9am - 5pm
REF: ECO/GRANT2023
Date: (today's date)

Call: **0161 883 3143**
Please contact no later than (date)

What to do now
Speak to one of our team members on the above number, this is a free to use service, no costs will occur, funding is free, any measures fitted are free and yours to keep.
Funding is in high demand and allocated on a first-come first-served basis, dependant on certain criteria. If claimed, you will be able to use the free funding for a range of home improvements, such as insulation, boilers, heat pumps and solar panels.
Energy Funding Service is an organisation working in partnership with 0800 Repair helping to qualify households under the ECO4 Government Grant schemes. 0800 Repair are authorised installers for Greater Manchester Combined Authority who work with (Council Area Name) and the NHS.

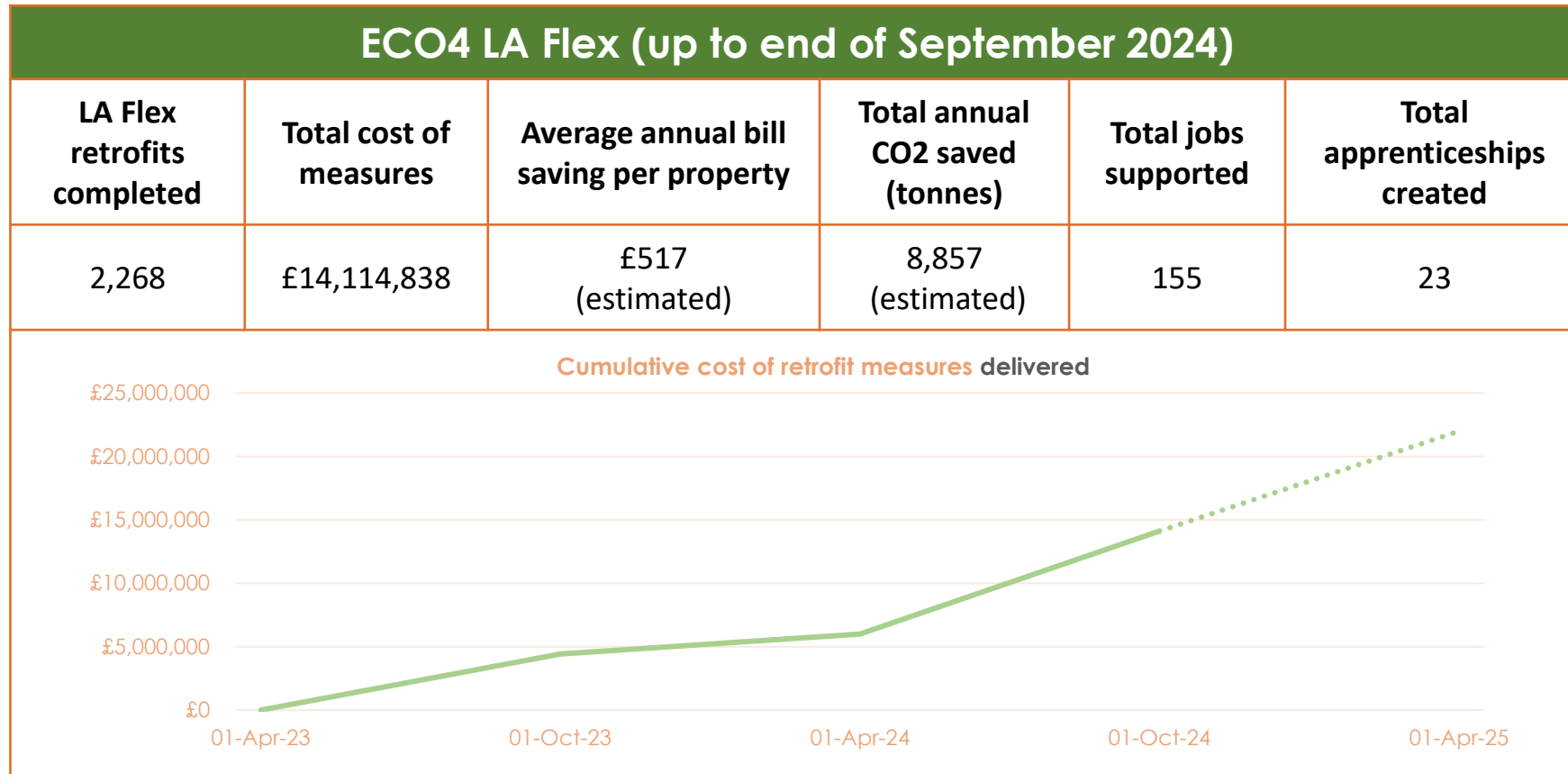
GMCA GREATER MANCHESTER COMBINED AUTHORITY
Bury Council
NHS Greater Manchester Integrated Care

Energy Funding Service is a Not for Profit Organisation providing a Free UK Service helping households access Government Funding. ECO Data Protection Registration: 28377827.
Energy Funding Service Ltd is a company limited by guarantee. Registered in England & Wales with company number 13385295. Registered Office address: Hurley Court, Buckley Road, Rochdale, CL12 9DU. For more information please contact a funding adviser, working under the Government ECO4 Scheme, helping to deliver ECO4, Local Authority Flex across the UK.
GOV ECO ENERGY GRANT REF: ECO4/GRANT2023
PAGE 1 OF 1

@GMGreenCity | #GMGreenCity

GREATER MANCHESTER
DOING THINGS DIFFERENTLY

Energy Company Obligation (ECO4)



Boiler Upgrade Scheme (BUS)

Unfortunately, this property is not eligible for the main energy efficiency schemes available in Greater Manchester.

However, the Boiler Upgrade Scheme (BUS) is a national scheme that offers £7,500 for replacing a boiler with a heat pump.

Greater Manchester residents can access the BUS through the following local offers:



- Greater Manchester's one-stop-shop for retrofit.
- Access BUS funding through local installers, alongside wider improvement works.
- Independent advice
- Request a quote [here](#).



- UK-first manufacturer-backed heat pump offer.
- Partnered with Daikin's Sustainable Home Network of local installers for pre-agreed pricing.
- Request a quote [here](#).



- Five star service from the UK's most awarded energy supplier.
- Octopus handle everything from quote through to installation and money-saving smart tariffs.
- Now available from just with the BUS grant.
- Get a fixed-price quote [here](#).

- [Your Home Better](#) offers an independent service to guide able and willing-to-pay residents through the retrofit of their home.
- 2 main offerings currently:
 - Retrofit Options Survey for £150 plus specifications costing £25-50 each
 - Whole House Plan for £450
- Can also take resident through full installation process, if desired for a 5% project management fee.
- Full launch was in November 2022, numbers are still low and building.
 - 8,000 letters sent out through a targeted direct mail campaign.
 - Ran a promotional campaign across Metrolink earlier this year.



GM Housing Retrofit Approach

Fabric First Multi Measure

- Insulation (Loft, Walls, Floor)
- Ventilation
- Windows and Doors
- Air Source Heat Pump
- Solar PV
- Battery Storage
- PAS 2035 and PAS 2030 or MCS compliant



GM Social Housing Decarbonisation Fund Wave 1

- SHDF Wave 1: 1 April 2022 – 29 February 2024.
- £15m programme (£8m grant + £7m co-funding).
- Consortium of 10 RPs.
- 819 homes.
- £18,000 average cost.
- 2,304 measures (insulation, heat pumps, solar PV).

GM Social Housing Decarbonisation Fund Wave 2.1

- SHDF Wave 2.1: 1 April 2023 – 30 September 2025.
- £97m programme (£37m grant + £60m co-funding).
- Consortium of 18 RPs.
- 5,481 homes.
- 20,987 measures (insulation, heat pumps, solar PV).
- 1,107 Air Source Heat Pumps.
- Digitalisation allows remote monitoring of performance.

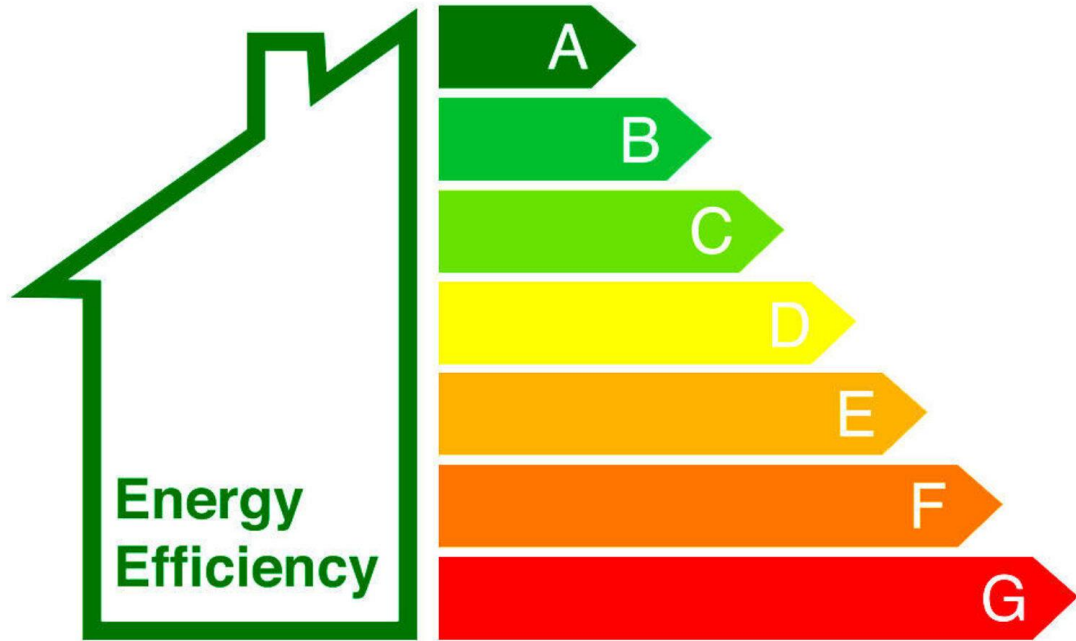
GM SHDF Wave 2.1 Measures



Measure	Count
Loft Insulation	2,484
Cavity Wall Insulation	2,082
Underfloor Insulation	559
External Wall Insulation	2,595
Internal Wall Insulation	328
Flat Roof Insulation	135
Room In Roof Insulation	11
Air Source Heat Pump	1,107
Ground Source Heat Pump	58
Shared Ground Loop	196

High Temperature Heat Pump	146
Solar PV	974
Draughtproofing	273
Ventilation	3,006
Double Glazing Window	751
Low Energy Lighting	3,193
Heating Controls	1,175
Hot Water Cylinder Jacket	89
High Heat Retention Storage Heater	102
Energy Efficient External Door	851
Other	872
Total	20,987

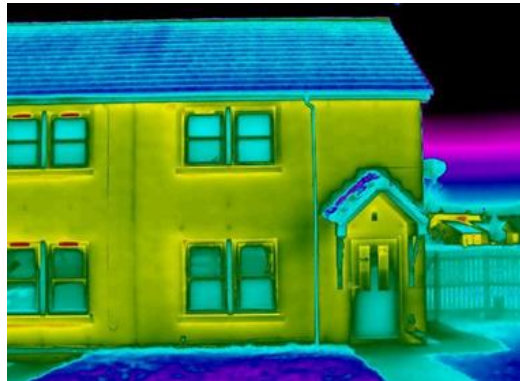
GM SHDF Wave 2.1 Impact



EPC Band	Pre Works	Post Works
B		46
C	3	5,413
D	5,026	22
E	334	
F	105	
G	13	
Total	5,481	5,481

GM SHDF Wave 2.1 Outcomes

- Average annual bill saving: £276.78 per home
- Total expected annual energy saving: 26,895,921 kWh
- Number of jobs supported: 3,529
- Apprentices: 63



Government Warm Homes Plan

- Committing an initial £3.4 billion towards heat decarbonisation and household energy efficiency over the next three years.
- This includes £1.8 billion to support fuel poverty schemes, helping over 225,000 households reduce their energy bills by over £200.
- The government will increase funding for the Boiler Upgrade Scheme in England and Wales this year and next, following the high demand for the scheme.

GMCA Warm Homes: Local Grant

National Scheme Criteria:

- Owner-occupied or Private Rent
- Low-income Households
- Improve EPC from D-G to C
- Up to £15k Insulation
- Up to £15k Low Carbon Heating
- 15% Admin and Ancillary Costs
- PAS 2035 and PAS 2030 or MCS
- TrustMark

GM Options for Consideration:

- Scheme delivery by GMCA or LAs
- Grant or Interest Free Loan
- Area Based Scheme
- Focus on Solid Wall Insulation
- Remedy disrepair

GMCA Warm Homes: Social Housing Fund

National Scheme Criteria:

- Social Housing
- Improve EPC from D-G to C
- Up to £7.5k Insulation
- Up to £7.5k Low Carbon Heating
- 50% Match Funding
- 15% Admin and Ancillary Costs
- PAS 2035 and PAS 2030 or MCS
- TrustMark

GM Options for Consideration:

- Regular bidding windows
- Retrofit Assessments and Designs
- Grant or Interest Free Loan
- Gas Boiler Replacements
- Damp and Mould
- Estate Regeneration

GM Housing Retrofit Framework Agreement

- We have worked with the Net Zero Hubs to specify and procure a £1 billion national [Net Zero Housing Retrofit Framework Agreement](#). Closing date was 28 October 2024.
 - Lots 1-6 are for Supply Only.
 - Lots 7-12 are for Design, Supply, and Installation.
 - Lot 13 is for Turnkey Solutions.
 - Lot 14 is for PAS2035 Roles.
 - Lot 15 is for Customer Journey.
- Following evaluation, we expect the Framework Agreement to go live in early January 2025, well in time for Local Authorities and Housing Providers to use it for the recently launched Warm Homes [Local Grant](#) and [Social Housing Fund](#).

GM Housing Retrofit Embodied Carbon

- GMCA and The University of Manchester are developing a carbon calculator to quantify the carbon impact of building retrofit works.
- Dr Mithila Achintha will work with GMCA to embed carbon quantification knowledge and tools within the GMCA Retrofit Team.
- The carbon calculator will enable independent and consistent evaluation of the embodied carbon impact of different makes and models of retrofit equipment and materials, allowing us to better understand and select the solutions with the least carbon impact.
- Longer term, this will help to reduce the amount of embodied carbon involved in retrofitting by a significant proportion and support Greater Manchester's goal of becoming carbon-neutral by 2038.

Question and Discussion

Professor Maria Sharmina, Co-Director Policy@Manchester

December 2024