**Working Draft**

# retrofitGM

Accelerating Retrofit for GM

# Contents

# Forward by the Mayor to be drafted

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# 1. Executive Summary

For Greater Manchester to meet our carbon neutral target by 2038, and not exhaust our carbon budget, we need to take immediate action. As a region we have already used next year's carbon budget. At our current rate of emissions, our entire budget will be gone in 6years. Action is required on every source of greenhouse gas emission. But we need to prioritise the decarbonisation of heat which is our second biggest source of carbon emissions (after transport). The largest single source of heat emissions is from our homes, so decarbonising the heating of our homes is critical.

It will be seven years before all new homes in GM will be net zero carbon. In the meantime, over three quarters of our existing homes (some 887,000) will need to be improved. This requires the development of an annual domestic retrofit market of between £610m-£830m. Our Ambition is to create this market in such a way that it benefits GM's residents and business, creating opportunities for all. This is a big step-change for a market which is still in its infancy, and which suffers from multiple market failures (including a lack of market demand, supply chain capacity and capability, a suitably skilled workforce, or the financial products and services needed to fund the measures).

While the retrofit challenge we face is large complex and multifaceted so are the benefits we will realise by meeting it. These benefits are not limited to just environmental gains, the retrofitting of GM buildings will result in a step change in the way we live and work, bringing with it a suite of benefits ranging from direct economic gain, through to health and wellbeing improvements and a more skilled and resilient workforce. Done correctly it will do this so that no one is left behind, that those who are most vulnerable benefit the most and our resilience to future climate change shocks is strengthened. This is not about paying today for gains at some unspecified point in the future, there are opportunity's today which can realised, such as installing 200,000 Air Source Heat Pumps into those properties which are suitable and don't need to be retrofitted, a £1.2bn market; or responding to the 31% of GM owner occupiers who want to retrofit their homes in the next 5 years, a £3-5bn opportunity. The scale of the retrofit task means that not only will retrofitting our buildings help address some of our biggest socio economic challenges we face as a city region, it is hard to see how we could address them without such a large scale programme to ensure a fair and just transition to a net zero carbon society.

**Why act now?**

Decarbonising home heating is critical to achieving not only our environmental targets, but it also has the ability to realise many wider benefits whether its health, equality, economic inclusion or fuel poverty. For example, 157,000 Greater Manchester households are in fuel poverty and retrofitting their homes will reduce their energy bills significantly. With 14% of homes in GM being in fuel poverty, the `at-scale' retrofit of our homes is critical in levelling up our society to ensure no one is left behind as we move into our net zero-carbon future. Reducing carbon emissions will deliver economic, social and environmental gains, as well as reducing the risks from future energy price shocks and supply constraints. As the impact of retrofit a system we need to better recognise and capture these wider policy benefits and move away from an approach which views building retrofit and onsite energy generation

through the oversimplistic myopic monocle of financial payback, which acts as a deterrent for investment.

**Priority area 1: Boosting skills**

While retrofit generally does not require new trades, it creates a clear opportunity to upskill and retrain existing tradespeople within the construction sector to meet the expected future demand. Our current training programme indicates at 60% of trainees are existing tradespeople and 40% new to the sector across GM. The sector sees around 1,000 apprentices and 3,000 Further Education learners completing Construction programmes every year. This needs to increase, both with young people learning about the sector on systems like GMACS, and with employers providing entry-level opportunities to young people across the wider sector, this is needed as there is an existing shortfall of approximately 5,000 workers, as a result of an ageing workforce and Brexit. High level skills delivered by universities need to emphasis too, with retrofit requiring a system change in architecture, civil engineering, and design. In addition to craft trades there is a need for higher level skills such as Retrofit assessors and coordinators, as well as degree level apprenticeships. There is a broad spectrum of apprenticeships and higher/degree level qualifications which will need to be sighted on the changes happening around building retrofit and the role their profession needs to take.

Tackling the multiple market failures which exist will require a systemic approach. We need every organisation with a stake in retrofit (inc. suppliers, training providers, banks and other lending providers, and potential customers themselves) to work together. Only then will we able to ensure everyone has the necessary confidence to release the investments required to create a suitable skilled workforce.

**Priority area 2: Improving access to funding and finance**

To enable this suitably skilled and scaled market to emerge, we need those who can 'move early' to lead by example and do so (whether in the public, private or 3rd sector). They need to lead by example and use the powers they have to enable and support building retrofit of all tenures.

While some retrofit activity is already happening, it is mainly in the worst performing properties, as this is where the government funding is targeted so as to realise wise social objectives. While socially desirable, and equitable, this approach excludes 75% of the homes that need to be improved in GM. Grant funded programmes are helpful but will not deliver the speed or scale of activity required. We need to create the conditions which allow more market-based delivery and finance mechanisms to be developed: things like local climate bonds, property-linked financial products, green rental agreements, and green mortgages. Such mechanisms would need to support 'middle income' households who may not be eligible for larger grants but are unable to fund the difference themselves. Positioned correctly this is an opportunity to attract patient institutional investors which could reduce the cost of finance significantly. Work is ongoing to investigate the feasibility of such a fund, and where it could be linked to a property and repaid via Council Tax, further reducing the cost and risk to all parties.

**Priority area 3: Speeding up delivery**

GMCA is taking an active ‘market-making’ role to help drive up retrofit activity. We are, developing a traded service which will assess homes, and provide customers with a customised ‘retrofit plan’ – giving them confidence about what needs to be done, in what order, and how it could be paid for. This will particularly focus on the 31% of GM homeowners who we know are willing to undertake some form of retrofit in the next 5 years with the right assurances and support. This is in addition to existing plans to invest in retrofitting 7,200 socially rented properties and other commercial, public, and academic building retrofit schemes.

In addition to accelerating the uptake of retrofit activity, the retrofitting of buildings and the associated transition to the electrification of heat, will increase the demand for electricity, which is already increasing due to our move to electric vehicles. Currently GM spends around £5bn a year on energy, with most of the money leaving the region. This financial outflow will increase unless we seize the opportunity to meet this energy demand through local onsite generation, which has multiple benefits, including:

- reducing the ongoing cost of heating the building
- reducing exposure to future energy price shocks
- reducing the need to reinforce the electricity grid (which has embedded carbon)
- reducing unemployment by generating local high skilled jobs

Through the Greater Manchester Spatial Framework, standards for new buildings and developments will be set, but we still need to increase renewable energy generation and low carbon heating in existing homes and buildings. To achieve this, residents, businesses and stakeholders will need support to help make the right decisions, making sure everyone can benefit from these changes in order to ensure a fair and just transition.

## 2. Our Opportunity

This Plan sets out how Greater Manchester will move quickly to increase the speed and scale of retrofitting across the city region. This is as much an environmental imperative, as it is a social and economic opportunity. A sustained plan to retrofit our buildings will create thousands of new, high-quality jobs and opportunities for existing tradespeople to diversify into sustainable careers. It could also cut energy bills for some of our most vulnerable residents and improve health and wellbeing by improving the physical fabric of our homes.

This is our Greater Manchester approach to decarbonisation – delivering on our climate commitments through actions that also level up and improve people’s lives. That’s why our refreshed Greater Manchester Strategy puts the climate and equalities agendas at its heart. We are committing to viewing all our activities, priorities and plans through these lenses. Our goal of a carbon neutral GM by 2038 is a once-in-a-generation opportunity to deliver substantial carbon reductions, environmental and health benefits for our people, whilst also creating new green industries and jobs that capitalise on our outstanding research assets and large low carbon goods and services sector.

For example, we want to deliver a London-style public transport system. This would improve the day-to-day experience of the network (with more frequent, reliable and cheaper transport connections) and decarbonise (through electrifying the bus fleet). The result is a better public transport system that gets people out of their cars and cuts congestion and carbon. But it

also connects people better to all the opportunities our city-region has to offer – widening the jobs market and helping young people go to the college of their choice not the college they can reach.

Our business, universities and other partners are also coming together to form the 'Innovation Greater Manchester' partnership. This is a plan to leverage and accelerate the success of Greater Manchester's existing research and development (R&D) hubs in global frontier sectors, including advanced materials and manufacturing and clean growth, and drive more commercialisation and industrialisation. This aims to translate the scientific excellence in GM into productivity gains, economic growth and everyday innovations that will drive down the cost of decarbonising. We're also providing support through 'Bee Net Zero' to help businesses who want to decarbonise.

With the right action, we can decarbonise our economy and improve people's lives with better homes, better jobs and better public transport.

At around 3,560 $kCO_2e$ per annum, the carbon emissions associated with heating our buildings are the second largest source of the region's greenhouse gas emissions (after transport). We need to urgently address this if we are to meet our 2038 carbon neutral target, and more importantly stay within our carbon budget. The actions needed to achieve this target will also help to address wider GM socioeconomic objectives related to equality, inclusion, fuel poverty, health and wellbeing, and economic resilience. To reduce these carbon emissions, we need to heat our buildings with renewable energy, and to do this economically means we need to retrofit them, so they are thermally more efficient.

What do we mean by retrofitting?
In this report, when we talk about 'retrofitting' we are talking about two main types of activity:

1. Improving thermal efficiency and air tightness. Most of our buildings in the UK have poor thermal efficiency. They 'leak' heat through poorly insulted roofs, walls and floors. This is inefficient and costly. But it is also a barrier to moving to renewable sources of heat. To be economic renewable heating systems (like heat pumps) generally generate less heat than traditional gas boilers. They generate enough to heat a home but only if the home is well-insulated. That means action to improve the thermal efficiency of our existing buildings (through new doors, windows, draft exclusion and insulation) has to happen before households can switch on mass to renewable systems.
2. Shifting to renewable heating. This means replacing (mainly) gas boilers with low carbon alternatives, heat pumps and other systems which use renewable energy to generate heat.

**Challenges to scaling up retrofit**

To hit our environmental targets, and wider policy objectives, this retrofitting of buildings needs to happen rapidly and at scale, to do this we need to overcome a number of key challenges.

<u>An underdeveloped market</u>

The scale and speed at which we need to retrofit of our buildings means the private sector and the market will need to play a central role, but the market is not currently fit for purpose. The market currently lacks capacity, capability, financial products and services, a skilled present and future workforce, and quality assurance, once unlocked it will be a powerful

driver for place-based change. There are four key challenges preventing this being realised, namely:

- **Poor economic incentives.** Our national energy taxation policy disincentivises the switch to renewable heating, by taxing carbon intensive gas less than electricity, while the Government has stated it will address this it is yet to give a quantified timeline for what is envisioned to be an incremental shift
- **Poor awareness.** Most people do not know that we need to heat our homes, offices and schools differently. Those that do face a plethora of inaccurate information on the efficacy and cost of renewable heating.
- **Poor availability of finance.** Unlike most other building and domestic home improvements projects, retrofit measures are often viewed solely through the lens of payback. Unfortunately, this can be drawn out. The cost of retrofitting a property including the installation a Heat Pump can be between £10,000-£15,000, so most people will need to borrow money over a number of years and the interest charged can have a significant impact on the overall cost the retrofit. Long term patient (low interest) capital is needed, which recognises that the duration of the loan may well be longer than resident lives in the property.
- **A vicious cycle.** Because such buyers are not well-informed the consumer demand needed to fix the market is not present. This creates a vicious circle of poor demand driving poor supply, which needs to be broken.

The scale of the environmental challenge means action is needed across all building tenures, whether domestic, commercial and industrial, or public. But the barriers and drivers to decarbonising these different types of buildings are different and will require specific interventions. We need to sequence these interventions and start by targeting those sectors/individuals who already recognise the urgency we face. Doing this will create the necessary demand to stimulate the provision of skills and the enabling financial products and services. It is critical that this demand stimulation is mirrored by a commensurate increase in the capacity of the supply chain to meet this demand, otherwise there is a risk of inflated costs and poor quality.

<u>An under-skilled workforce</u>

As well as stimulating demand, we also need to develop a suitably skilled and scaled supply chain. Whilst this will create some new jobs, much of the work will be done by our existing workforce of tradespeople who will need to be upskilled. Although it is not clear at this stage where that balance will be, and it is likely to change over time as the wider construction market follows its highly cyclic demand profile.

**The Opportunity in Numbers**

To achieve our environmental goals, we need to:

- Retrofit 887,000 homes, of which 138,000 are in the Social Rented Sector
- Retrofit 700 Local Authority controlled schools
- Retrofit 2,700 Public Sector Buildings
- Retrofit Every commercially let property which has an EPC of less than C by 2030
- Upskill 80,000 existing construction workers
- Shortfall of approximately 7,000 – 8,000 construction workers over the next 5 years
- Create a GM retrofit market of £600m - £800m pa

It will be difficult to make this happen, because the construction sector has a strong pipeline of non-retrofit work. As long as this is the case, employers are unlikely to invest the time and resources needed to release staff to train in 'retrofit skills' on their own. As retrofit competes with more traditional projects for labour, we need to demonstrate a long-term pipeline to give employers, employees and colleges the confidence they need to enter the market. The market will also require employers to acquire new third-party accreditations such as Trustmark and Microgeneration Certification Scheme (MCS); which will cost time and money.

Under-developed infrastructure

The UK's legally binding commitment to a 78% reduction in carbon emissions by 2035 and to have less dependency on imported gas is driving the transition to the electrification of heat. This is happening in parallel with the move to electric vehicles, will significantly increase the demand for electricity over the next 5 years. This will require a whole system approach to the energy challenge. By installing local renewable energy generation and storage it will be possible to generate long term revenue streams, reducing our risk to future energy price shocks and security of supply.

**Where are we?**

Greater Manchester is not currently on track to be carbon neutral by 2038. We have already 'used' next year's emissions budget, and at our current rate of emissions our entire budget to 2100 will be 'spent' in 6 years. While action is required on every source of greenhouse gas emission, we need to prioritise the decarbonisation of heat because it is our second biggest source of carbon emissions (after transport).

While around a quarter of GM's homes could install renewable heating today, to make renewable heating affordable in the remining homes we need to reduce ongoing energy demand and cost by retrofitting (increasing the thermal efficiency of our buildings so less energy is needed to keep them warm). And where feasible, generate more renewable energy on site. Both actions reduce ongoing energy cost, offsetting the upfront capital investment needed.

While the current retrofit market is in its infancy and still, suffers from multiple market failures which need to be simultaneously addressed if we are to stand any chance of achieving a fair transition to a zero-carbon society.

The current market will not deliver the number of retrofits which are needed, because:

- Most people do not know they need to heat their homes differently
- Changing heating systems is not a priority for most people and is often an emergency purchase. As such, little thought is given to the options available.
- Most people are unaware of what they can do to make renewable heating an affordable reality
- The current supply chain is too small, with the majority of potential suppliers having a limited or an incorrect understanding of what can be achieved.
- Due to a lack of demand (volume and coordination), the unit costs are too high, and we are lacking a suitably sized and skilled workforce

- The current financial products are not well suited for long duration loans where benefits are split between present and future property owners or tenant landlord
- Due to the failings of past initiatives, the supply chain has limited confidence that the market will take off, so they are not prepared to invest in the new skills needed
- As there is very limited demand for 'retrofit skills' training providers are reluctant to invest or run course they are not confident they can fill

Current policy, regulation and taxation does not send a strong enough message to create the changes needed.

As these challenges are all intrinsically linked, with overall progresses constrained by any one of them, systemic intervention into the marketplace is required. The systemic nature of this intervention will also have wider implications, supporting the adoption of zero carbon technologies and renewable energy generation outside of the building retrofit as outlined below.

# 3. Why act now?

The UK housing market is on the cusp of a retrofit revolution. As we look to heat our homes with renewable energy, many of us will need to do the upgrades needed to make our properties fit for the future. Left to market forces alone, only those with the necessary knowledge and resources will be able to benefit from this revolution. This will result in many people being left behind, especially those who find themselves in vulnerable circumstances, and so further entrench inequality. As more people move to renewable energy sources, or to generating their own energy, those left behind will face higher costs per household to maintain the electricity network.

Early public intervention is needed to catalyse the market, making it cheaper and easier to adopt these changes, and so supporting a fair and just transition to zero carbon heating. This structured intervention will deliver multiple benefits to Greater Manchester residents and businesses including, for:

- **People:** For residents' health, education, jobs, income, and productivity.
- **Economy:** Improved productivity and the potential for the creation of new jobs and new skills as well as reduced pressures on public finances.
- **Environment:** making a significant contribution to reducing $CO_2$ emissions.

These benefits are outlined in more detail below.

<u>Benefits for Greater Manchester's residents</u>

Reducing energy demand by improving a home's fabric offers substantial economic benefits to the people living there. This is particularly important in Greater Manchester, where the number of people living in fuel poverty has risen every year for the last three years and currently stands at around 157,000 households (c.13% of all GM households). Reducing the proportion of income spent on energy positively impacts food poverty (tackling the infamous 'heat or eat' challenge). It can also improve household relationships (due to reduced financial stress) and health inequalities, (resulting in fewer GP visits). This in turn has implications for school attendance and attainment.

Retrofitting homes also delivers big health benefits. Cold or poorly ventilated homes are prone to damp and mould which can exacerbate existing respiratory conditions (like COPD) and have a significant impact on mental health (increasing the risk of depression and anxiety

by 50%). They can also double the risk of children getting asthma or bronchitis. Cold homes cost the NHS an estimated £600m-£2.5bn (depending on the method used), which is around 1.7% of total NHS spending (as of 2016/17 figures). Investing £1 in retrofit is estimated to save £0.42 in direct health costs alone. There is therefore the potential to make significant savings in public health costs by retrofitting homes.

**Example: The Warm Homes Oldham Project**

The 2016 Warm Homes Oldham project was aimed at households with poor health due to fuel poverty. It found:[1]

- 60 per cent of respondents with a physical health problem felt that the initiative had a positive impact on their health
- 80% reported that the project had a positive impact on their general health and wellbeing
- 96% of those who self-reported as being at 'high risk' of mental illness on completion of the General Health Questionnaire moved to 'low risk' following the initiative
- 96% of respondents agreed that their home was easier to heat as a result of their involvement in the project; and 84% agreed that they now spend less on their heating
- It was predicted that 75% of participants would move out of fuel poverty as a result of the initiative

Alongside these self-reported improvements in health and wellbeing, the project evaluation also tried to quantify the financial savings to the health system. For example, around 128 adults (of the 885 in the project) were estimated to have a Common Mental Disorder. Taking a conservative estimate of the benefits of the project (that the observed benefits had an immediate effect, but only lasted for one year) it found savings of around £45,000 in health costs (through a mix of reduced medication, counselling, GP and inpatient and outpatient costs).

The evaluation also calculated the employment, output and fiscal savings from impact on numbers of individuals with a CMD was also calculated. It found:

- £178,000 of extra GDP due to higher employment rates
- £37,700 of extra GDP due to reductions in sickness absence
- £137,300 of fiscal savings to the public purse through reductions in benefit claims.

**Benefits for Greater Manchester's Economy**

The benefits to GM's economy from retrofitting our buildings arise in three ways:

- Reducing our collective £5bn energy bill, enabling GM residents and businesses to spend or invest some of this money in more productive ways (from individuals buying more food, to firms investing more in R&D and innovation) and keeping more of it in GM.
- Supporting our foundational economy through the creation of the estimated 90,000 new retrofit jobs required, and safeguarding thousands more roles, by growing the local retrofit market

[1] 427 respondents from 176 householders took part, around one third of the participants, the report by Sheffield Hallam University states "From analysis of this dataset, the general picture is one of statistically significant change in almost all key change variables"

- Increasing our energy security both from future energy prices shocks and by providing more security of supply.

**Foundational Economy**

The foundational economy is the part of the economy that supplies everyday but essential goods and services that keep us safe and provide social and economic functioning and wellbeing' – Foundational Economy collective.

The 'foundational' and 'everyday economy' account for 62.5% of GM's workforce, including social care, early years, retail and construction. The GMCA's objective for the Foundational Economy Programme is to create higher pay and better jobs for everyone across the city region, to reduce economic inequality and increase productive investment in the region. The Creation of high-quality retrofitting jobs works to support this aim.

Our work with the Energy Systems Catapult identified that around 30% of GM residents were willing to undertake some level of home improvement retrofit in the next 5 years. This would translate into a market worth between £3bn and £5.4bn Investment of this scale, and the forward buying messages it would send to the market, would be a game-changer. It would not only act as a cost reducer, but it would also be an attractive proposition for inward investors looking to use GM as a springboard into the wider UK market.

Current capacity constraints in the retrofit supply chain also provides a driver for more companies to diversify into the sector and for product manufacturers and distributors to relocate to the region due to local demand and the ability to reduce distribution costs. By engaging these employers through existing initiatives, such as The Good Employment Charter and the campaign for Greater Manchester to become a real Living Wage City-Region, there is an opportunity to create high quality jobs for GM residents.

**The Greater Manchester Good Employment Charter**

The Charter is a voluntary membership and assessment scheme that aims to raise employment standards across the city-region, for all organisations of any size, sector or geography. It describes seven key characteristics of good employment: secure work, flexible work, real living wage, engagement and voice, recruitment, people management, and health and wellbeing. It is closely linked with the campaign to make Greater Manchester a real Living Wage City Region.

The development of a Good Employment Charter for Greater Manchester was first proposed in Andy Burnham's manifesto for the 2017 Greater Manchester Mayoral election. Following extensive consultation, the Charter was introduced in July 2019. It has now engaged over 400 employers across the city region, covering over 200,000 employees. This includes 16 property and construction employers signed up as supporters and 6 full members.

The charter is open to any organisation that employs people, and it has three levels:

- Supporters have made a commitment to improving practice in all characteristics of good employment;
- Members have made the Supporter Commitment and meet the membership criteria in all

characteristics of the Charter; and

- Advocates excel in characteristics of good employment and share their expertise with others.

The Charter is committed to creating a community of likeminded businesses and organisations who can work with one another to share good practice and influence peers within their sector. The Charter Unit (based at the Growth Company) deliver networking events and webinars throughout the year to highlight and disseminate best practice, in addition to recording a popular podcast series with high profile guests from across Greater Manchester.

Parts of the construction sector are also facing multiple challenges including an ageing workforce with fewer young people attracted to the industry, pre-existing skills shortages and difficulties incentivising and managing training and lifelong career development due to employment structures, and difficulties planning for long-term investment given the sector's vulnerability to recessions and other crises affecting demand. This creates an opportunity for GM to use the training and adoption of new technologies needed for carbon reduction, and the creation of a stable pipeline of demand, to attract more young people into the sector and increase the management capacity, innovativeness and productivity of construction companies.

**Benefits for Greater Manchester's Environment**

Improving energy efficiency and introducing renewable heating systems (like heat pumps) across the Region will reduce the $CO_2$ emissions we currently generate when we heat our homes and buildings. It will also reduce NOx emissions, improving both indoor and outdoor air quality. Reducing overall growth in demand for electricity will also reduce the need to reinforce the electricity distribution network, further reducing the emission of greenhouse gases and the 'embedded carbon' involved in these construction projects and reduce the demand on finite resources.

# 4. What are we going to do?

By 2030, our headline objective is to have reached an average of 61,000 domestic retrofits a year, and all non-domestic buildings reaching DEC/EPC C.

This plan sets out three priority areas where we need to take urgent action if we are to achieve this objective, meet the environmental challenge we face as a region, and to realise the identified economic, health and other benefits of scaling up retrofit across the region. These are:

a) Boosting Skills
b) Improving access to Funding and Finance
c) Speeding up Delivery

# 4.1 Boosting skills & talent pipeline

**Where are we now?**

The market in greater Manchester, as it stands, is primarily catering for small-to-medium scale retrofit across the social housing sector, with some current projects in the pipeline. There is a small but growing demand for retrofitting private homes. Building retrofit requires commissioners (be that public, commercial or domestic) to become informed clients and requires retrofit assessors and coordinators; individuals who can develop whole house solutions connecting thermal efficiency, heating and ventilation.

Retrofit generally does not require new trades. However, we need to upskill and retrain many existing tradespeople within the construction sector to meet the expected future demand. There are some big challenges we will need to tackle to make this happen, including:

**Existing workforce challenges.**

- Existing shortages. Work needs to be done addressing the pre-existing shortage of skilled trades across GM. This is estimated to be between 5,000-6,000 before any growth in retrofit activity.
- An ageing workforce. Address the age profile of the sector by attracting younger workers who currently do not view it as an occupation of choice.
- The talent pipeline picture in construction and retrofit is not encouraging – with existing shortages and high levels of self-employment, there are too few employers offering entry level work-based apprenticeship and traineeship opportunities.

**Weak incentives to train**

- There has been some hesitance among employers to reskill staff on new retrofit technologies and techniques. This is partly down to historic initiatives which were introduced then withdrawn, and also to low visibility of the pipeline. Tradespeople are already busy, with increasing investment in both new building and the domestic market while many in the sector are cautious to invest time and energy into reskilling while this is the case.
- 'Feast and famine'. The use of multi-level subcontracting reduces the profits available to those who actually deliver the works; making it easier to let staff go when markets turn downwards (not all return). As such skills are often bought in though subcontractors / self-employed and not developed within the labour force.
- Weak demand. Commissioners buy to a budget not the specification of what is needed to achieve our carbon neutral targets, often omitting more sustainable options, even when they are specified there are often "value engineered" out to hit a budget.

**Scale and breadth of training required**

- A large and diverse market. Many employers in GM are SMEs, which adds complexity for at-scale upskilling and training.
- Existing skills infrastructure does not support quick upscaling of relevant training. Directly relevant apprenticeships in Retrofit Advisor and Assessor are still to be developed. There needs to be more relevant material in the existing pathways at FE/HE level.
- Training requirements are not limited to tradespeople and needs to include higher skilled training e.g. Retrofit advisors, assessors and coordinators for whole house retrofits

Retrofit projects of all sizes require trades and construction professionals to operate differently. This will require new skills and competencies, which see greater interaction

across different trades. It also needs better planning and understanding of a whole building approach and, in the future, the wider system. But market demand for these skills is currently limited, and confidence that the skills will be needed in the short term remains low. This means there are few training providers offering the necessary courses. Even when courses do exist, there are also challenges around current qualifications containing the required content to meet the retrofit quality standards required.

GM already has a reasonably good spread of skills provision for occupations related to construction and therefore for retrofit-dependent trades. However, there is a lack of understanding amongst providers and other stakeholders of the ability and process for current curriculums to deliver a cohesive retrofit training package the extent of the change required in delivery is still unclear.  It is envisaged that there will also be a training need for current tutors and assessors of Skills in GM.

The understandably cautious approach of employers to investing in upskilling and reskilling for low-carbon homes means that this will be a niche market until it is driven by regulation and even then, employers will generally only upskill to the standard stipulated.

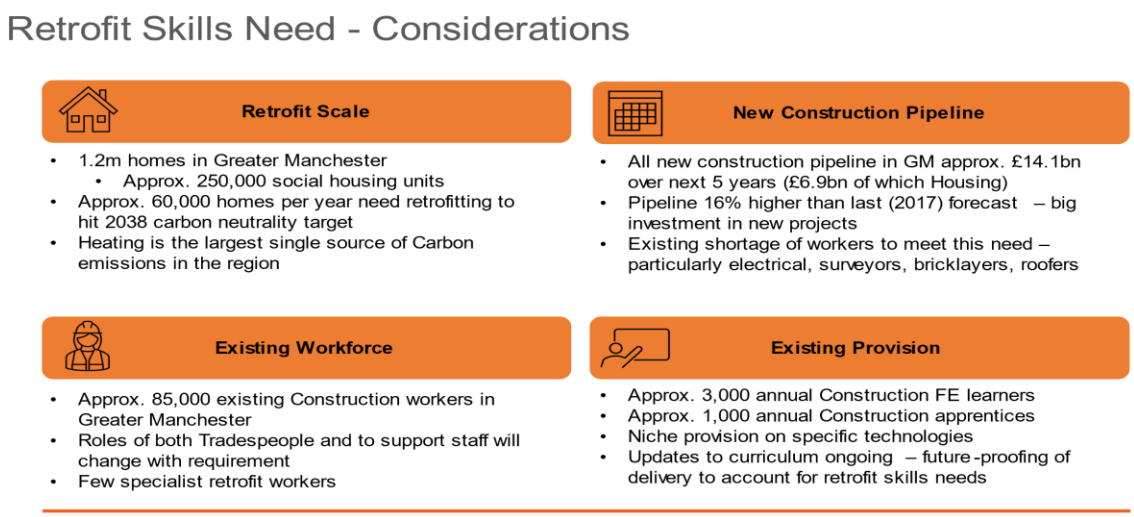



**Figure 1**: Retrofit Skills Considerations

The current retrofit market in Greater Manchester is mainly catering for small-to-medium scale projects across the social housing sector, with some current projects in the pipeline. There is also a small but growing demand for retrofitting private homes.

Building retrofit requires commissioners (be that public, commercial or domestic) to become informed clients. But it also requires retrofit assessors and coordinators; people who can develop whole house solutions connecting thermal efficiency, heating and ventilation. This reskilling process is not restricted to the craft trades such as joiners, plumbers, plasterers or electricians. It also needs quantity surveyors, architects' planners and project commissioners. Retrofit advice, assessment and coordination are new skills and do not always require a higher level of educational attainment.  While this may appear complex, this does not mean all retrofit projects need to be invasive or 'Deep", this will be dependent on the existing thermal efficiency of the property and the end level of efficiency the owner wants to achieve. While some owners may desire Passivhaus or BREEAM outstanding, these are not necessary to economically run renewable heating.  Those currently working in the sector, or who have recently left, could be re-trained or upskilled. Retrofit training should be largely on-site and the skills acquired will largely depend on the types of retrofit needed. Much of the

basic retrofit work has been done, so skills provision must involve some entry-level provision, but also higher-level skills for more complex retrofit works.

Employers have been hesitant about reskilling staff in new retrofit technologies and techniques. This is partly down to previous 'false starts' (government initiatives which were introduced then withdrawn). It is also due to low visibility of the pipeline. Tradespeople are already busy, with increasing investment in both new building and the domestic market. Faced with immediate and certain existing demand for 'traditional' construction work, many in the sector are cautious about investing time and energy into retrofit as it can seem like a riskier bet.

**Where do we need to be?**

As this is an emerging market, there is a need to develop and agree suitable standards and protocols to ensure the work undertaken and the technology installed is fit for purpose. This accreditation landscape is becoming increasingly clear nationally, coalescing around the PAS 2035 requirements and registration with Trustmark alongside the Microgeneration Certification Scheme. This outlines the approach to retrofit, and the roles needed such as Retrofit Assessor and Retrofit Coordinators. These accreditation bodies will also enable tracking of the shape and size of the GM supply chain.

Data shared by Trustmark indicates that around 440 individuals and businesses are registered in Greater Manchester to work on Retrofit projects. Given the full construction workforce in GM numbers around 85,000, the number of Trustmark accredited installers will need to increase in the coming years. Additionally, the data reveals some particular vulnerabilities in the existing Retrofit workforce – for example low numbers of external wall insulation installers. This workforce will need to be both expanded and upskilled to ensure that the Skills supply meets the demands of the region.

| Trades | Supervisor and specialist roles |
|---|---|
| **Existing trades affected:**<br>• Heating engineers (especially higher-level upskilling)<br>• Electrical trade and installations<br>• Plumbers<br>• Joiners<br>• Roofers<br>• Plasterers | **Existing trades affected:**<br>• Architects<br>• Project managers<br>• Site supervisors<br>• Planners<br>• Designers |
| **New roles:**<br>• Multi-skilled trade (Retrofit designers and advisors) | **New roles:**<br>• Retrofit coordinator |
| **Skills Opportunity:**<br>• Upskill for new competencies required as part of PAS2035<br>• Embed skills and competencies set out in PAS2035 into curriculums for existing | **Skills Opportunity**<br>• Upskill existing professions to develop new competencies required as deliver to PAS2035 standards up to L5 retrofit coordinator |

| | |
|---|---|
| trades or add on as extra modules.<br>• Create opportunities for existing trades to become multi-skilled<br>• Encourage upskilling where there are new "competent person" schemes for example heat pump installation | • Ensure new entrant routes have curriculums which meet this standard or offer competencies as part of extra modules. |

**Figure 2:** Skills development opportunities by trades & professional roles.

**How will we achieve this?**

For reasons set out earlier, it is challenging to develop a clear timeline for skills development for retrofit because employers will not invest in retrofit reskilling unless there is a clear and visible market This challenge is mirrored for training providers. However, this work is well aligned to wider GMCA work to deliver domestic retrofit, so is well placed to be updated as the market develops. We also have some visibility on where demand will come from as outlined in the table below. In the short term, there are opportunities to upskill the existing workforce in large numbers, and to turn more of workers into multi-trade professionals. Additionally, there is work to be done both on the curriculum of existing construction provision (in Colleges and Universities), and to stimulate the provider market to deliver more relevant training and qualifications.

In the medium term, more work will need to be done on attracting new entrants to the market – perhaps by promoting the green credentials of retrofitting jobs. Increasing funding options for these entry level roles will be critical. In the long term, the construction workforce will need to be larger and more flexible in order to meet the retrofit delivery demand. Explaining the scale of the opportunity for young people on careers systems like GMACS will be a crucial part of building the talent pipeline. There is a desire among young people in the region to work in a "Green" career – if positioned in the right way, the retrofit workforce will see new entrants. Retention of the existing workforce will need to increase as well as see growth in entry level workers to offset the ageing construction workforce.

The response from the skills system needs to be wide ranging, both to upskill the existing workforce and to increase the number of new entrants into the sector. A key part of making this happen will be to provide an accurate aggregation of the upcoming demand in Retrofit activity. This will help to stimulate interest and confidence, encouraging workers of all ages to train, retrain, or switch career.

In addition to this, there are various separate solutions for each group within the workforce. The GM Skills system needs to:

1. **Start small and grow rapidly**: Reskilling and retraining alongside pipelines of small-to-medium sized projects with housing providers, whilst building an employer base for future projects.
2. **Develop new competencies**: Provide opportunities for new design and advisory competencies resulting in a new workforce of retrofit designers and advisors. This may lead to the creation of new training pathways for retrofit coordinators.
3. **Target professions for CPD** so that they can cascade retrofit approaches down through a project. Ensure training includes the development of toolkits to support in cascading retrofit advice.
4. **Develop clearer reskilling and retraining pathways and packages** for employers which meet a GM standard of "effective training for retrofit" and better market these alongside the rationale and business case for change within the construction industry.

5. **Develop new types of agile and flexible learning** including mobile, site-based training and digital solutions (for example, late afternoon small sessions have been suggested).
6. **Raise the profile of construction as a green skills sector** through inspiration activity with young people and families inside and outside of school which gives consistent messages about the career pathways for retrofit.
7. Promote a career in the sector as one which is both **high paid and has long term** security
8. **Increase skills** for new types of heating and plumbing, including competent person standards where possible.
9. Linked to the above, **promote employer engagement** through increasing technical routes, including apprenticeships

## 4.2 Improving Access to Funding and Finance

**Where are we now?**

Retrofitting a home will result in multiple benefits for the people who live in the property, to the wider economy and society at large. While it is possible to monetarise some of these benefits, these benefits are not always realised by the person making the investment, making the business case harder to justify for those who need to do so, e.g., commercial, or residential landlords. This can be further complicated when the cost of a retrofit is compared with replacing a gas boiler, ignoring the wider home improvements which a retrofit can involve and the comfort and wellbeing gains. This can result in long payback periods as the investment is not always fully reflected in an increased value for the property, in the same way some other home improvements are. This is likely to be less material over time, for all tenures, as house prices are starting to reflect energy performance. BEIS research from the Buildings and Heat Strategy, states that, after correction for architype, a property with an EPC C will sell for 5% more than and EPC D, this is not widely known.

Funding retrofit is a complex challenge which requires a range of different finance solutions that reflect the issues facing different sectors

- **Individuals** need to be able to easily access finance solutions which are patient and provide an incentive to undertake the necessary work.

- **Commercial/residential landlords** are often able to access finance through traditional lenders. However, the spend and benefits are misaligned – the landlord pays for the work, but the tenant often sees the direct financial benefit of lower bills (and the payback will not be short term).

- **The Public sector** can access finance through the Public Works Loans Board which generally offers cheaper finance and is easy to obtain. But justifying such loans for retrofit can be difficult, because the wider benefits of retrofit are not captured because income streams take time to cover the loan. There have been some relatively small-scale grant programmes which capture the income stream, to help the business case, but they require a pipeline of proposals to be ready and deliverable. Developing this pipeline of projects requires time, money, and technical specialists – all of which are in short supply
-

Whilst the issues around funding are now better understood, the innovative solutions to address these issues do not exist or are not widely available.

As well as access to finance, there are also financial issues created by competing priorities across organisations. Retrofit measures often deliver marginal financial returns and do so over longer timeframes than traditional development projects. When money is tight, it can therefore be difficult to convince decision-makers to choose retrofit over alternative options. This is especially true when wider climate change commitments and policies are not factored into the decision making.

**Where do we need to be?**

There is a need for a suite of widely available financial products, which meet the needs of organisations and individuals who want to retrofit their properties, and which are 'technology-blind'. Outside of a few relatively small-scale government grant programmes, there are currently few financing options for retrofit which seek to address the challenges noted above.

There is an opportunity for a GM partnership to act as a trailblazer, bringing new finance initiatives to the market that support the widespread delivery of retrofit in the public, commercial, domestic, and social rented sectors. Key to making this happen will be to review and value the wider benefits of retrofit – including the cost of carbon and security against future market price changes and security of supply of gas.

Creating financial products which are predicated on carbon savings and onsite generation should also reduce the prevalence of "value engineering" out the low carbon measure, as to do so would make them ineligible for the financial product.

**How will we achieve this?**

We need to create a blueprint for what suitably structured financial products would look like, demonstrate there are organisations willing to provide them and show there are customers who would be willing to use them. The GMCA are working in collaboration with the Green Finance Institute To move forward a number of workstreams to bring such products to market, this will include:

- **Local climate bond** – Local Climate Bonds, a type of ‘community municipal investment’, allow local authorities to raise capital to fund specific initiatives in their neighbourhoods. Detailed work is underway to determine if a viable pilot can be established in GM, potentially as a method of funding the Public Sector retrofit pipeline which has been developed through the Go Neutral programme.

- **Property linked finance** – This is a concept where financing for retrofit stays with the property and not the individual when ownership changes, and it has been successfully piloted in the U.S. Work is already under development by the Green Finance Institute to establish a financial product for older people which would allow them to fund retrofit through an equity release type mechanism. But in order to make this kind of product accessible to the wider population it would likely require legislative change in order to link the loan to the property so that it does not need to be repaid when the property is sold. The full legal requirements are being worked through.

- **Demand aggregation** – This means bringing together many individuals or businesses who want a particular product. This creates a combined volume of demand that then proves attractive to suppliers/financiers, provides economies of scale and reduces costs. For example, the GM Solar Together campaign saw over 300 households sign up together to get Solar PV arrays installed (but due to timing it was not possible to incorporate a suitable financial product with this). A pilot to trial this approach in GM is being developed.

- **Green rental agreement** – This initiative sees retrofit funded through rental agreements which include the cost of heating, this result in the financial savings from the energy efficiency go to the landlord, thus providing an incentive for landlords to act. This addresses one of the key challenges of retrofitting in that the benefits and financing are not always realised by the person who pays for the retrofit. Work is underway to establish how this type of agreement could be linked with the GM’s Good Landlord Charter.

- **Green mortgages** – This is where lenders (like banks and building societies) offer preferential rates to homeowners that retrofit their property. 'Green mortgages' do already exist, but the offer is not extensive or well recognised.

## 4.3 Speeding up Delivery

**Where are we now?**

As previously outlined, there are many (often related) reasons why the retrofit market in GM is not delivering at the scale needed to address the challenge. Layered on top of this core market failure, there are currently a range of other competing demands on the retrofit sector, including:

- A backlog of works which were stopped/delayed due to covid restrictions
- A demand for home upgrades being driven by an increase in home working
- A stamp duty relief designed to increase the number of people moving home (moving home often triggers building works)
- Post-Grenfell safety works on External Wall Cladding/Insulation Short term Government initiatives e.g., Green Home Grants

This means that the sector has more work than it can deliver. Companies can therefore pick and choose what they do, and in the main are choosing routine work they are familiar with (and doing it at inflated margins) rather than doing retrofit work or releasing staff for retrofit training. This cost increase is exacerbated by the rapid increase in the demand for materials on the back of COVID induced supply chain pinches.

We therefore need to balance the urgent need for large numbers of properties to be retrofitted with the physical limits of the existing supply chain. If we grow demand too quickly then we increase the risk of poor quality or inappropriate installation, which would jeopardise future delivery. One way to help overcome this bottleneck in the medium term is to look to develop and implement innovation solutions which make retrofit quicker, simpler, cheaper, less invasive with increased customer protection. The mass deployment of such innovative solutions would increase the uptake by reducing upfront costs and non-financial barriers.

Retrofit delivery is best viewed as 3 submarkets with distinct opportunities and challenges and distinct public policy levers. These are domestic retrofit, public building retrofit, and commercial/industrial retrofit. The following section look in more detail at these markets and the opportunities they afford.

**Domestic Delivery – The race to C**

For a household to be able to affordably heat their home from renewable sources, the energy rating needs to be C or above, or running costs become prohibitive in the current market. The work we have undertaken with Parity in 2020/21 "Pathways to Healthy Net Zero Housing for Greater Manchester" tell us that we need to increase the thermal efficiency for three quarters of our homes, some 887,000 households.

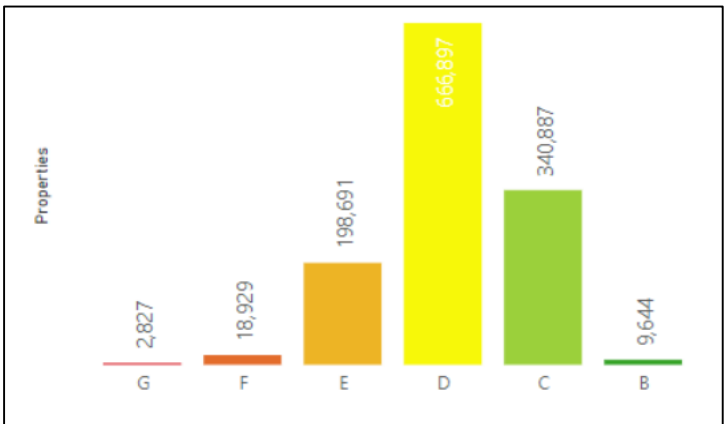
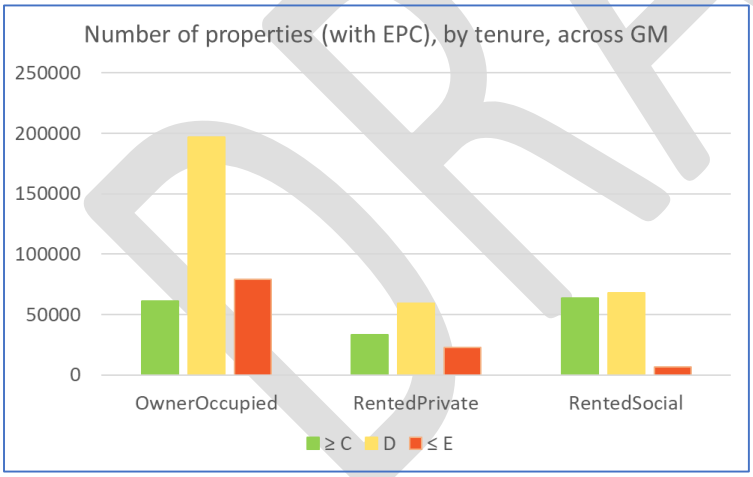


**Figure 2-1: Distribution of SAP rating of homes in Greater Manchester.**

If we are going to be successful in driving delivery, we need to know what progress we are making, and understand efficiency levels across GM's housing stock, without the need for expensive data collection systems. To do this, we intend to use existing nationally available data provided through Energy Performance Certificates (EPCs). These are certificates which measure a home's energy efficiency and which homeowners are required to get every time a house is sold or let. We will also analyse how Standard Assessment Procedure (SAP scores) change over time, to help determine incremental changes which, while not large enough to result in an EPC score change, are nonetheless a meaningful change when assessed across the entire housing stock.

Our work with Parity identified that 57% of GM households are owner occupied, 20% private rented, and 23% social rented. While retrofit activity is needed across all three tenures, the owner occupier sector has the most inefficient housing (both in absolute and percentage terms).




Note: only around half of properties have an Energy Performance Certificate

Our work with the Energy Systems Catapult found that around 30% of homeowners say they are willing to retrofit their home in some way but are not doing so because of the barriers previously identified. In recent years there have been several Government interventions to try and encourage households to undertake retrofit (and to subsidise the cost) but they have often been small-scale, short-term, and have had mixed success.

To support the market the Government introduced the Green Homes Grant voucher scheme, this was launched in 2020 and targeted the private rented and owner occupier sectors. It was widely deemed to be unsuccessful, has since been scrapped, and received highly critical feedback from the National Audit Office. The similarly named Local Authority Green Homes Grant has been more successful, investing £27m this year in GM to retrofit the most fuel poor homes. The challenge with this fund has been that there is not enough capacity in the supply chain to meet customer demand. This means it is likely to underspend in GM, with funds returned to Government. This lack of supply chain capacity is particularly acute for External Wall Insulation contractors due to post-Grenfell remedial works on tall buildings (GM has the highest number of tall buildings in the UK outside London). While both funds

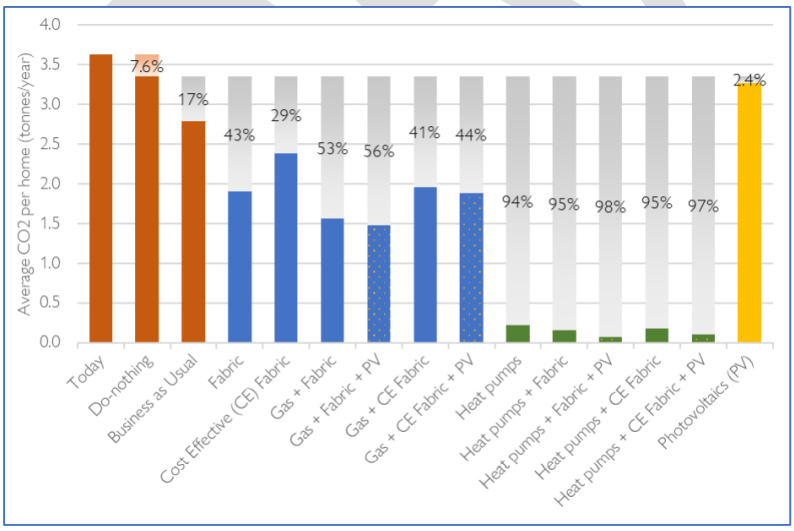
have been of some value, their scale and duration have not been commensurate with the challenge GM (and the country) faces. This is compounded by the schemes' focus on the most inefficient homes (EPC – EF & G) which make up only a quarter of the 887,000 homes that need retrofitting.

It should be noted that not all homes need to be retrofitted to be suitable for renewable heating to be a financially viable option, e.g., there are around 205,000 homes in GM which could install an Air Source Heat Pump today without any fabric improvements, a potential £1.2bn market. The Governments £5,000 Heat Pump Grants will from April 2022 will support this market to develop and will be particularly attractive to those who are both willing to pay and live in such a property.

To stop the scale of the retrofit challenge getting worse, all new homes will be designed to be net zero carbon by 2028. In GM we also plan to build 30,000 net zero affordable homes by 2037. This will require new ways of thinking, new supply chains to be engaged and skills to be adopted by both the existing and new workforce. This provides an opportunity to share and transfer the learning secured on new build into the wider retrofit and home improvement market.

**Where do we need to be?**

The Parity Projects work provided a range of scenarios for GM to achieve Net Zero housing by 2038. Historically, retrofit schemes in the UK focus on improving insulation and the efficiency of a boiler, but largely remain reliant on fossil fuel boilers. This must change, as there is no place for mineral gas in net-zero housing. The main option to decarbonise domestic heating in GM is the electrification of heat through air source heat pumps (ASHPs), and (where opportunities exist) the development of heat networks, where an energy centre provides and distributes heat to multiple dwellings, "Heat pump + cost effective fabric + solar PV" is the most cost-effective means of reaching carbon neutrality, currently reducing emissions by 97% (see graph below © Parity Projects).




To enable an ASHP to cost-effectively heat a home, the home needs to be well insulated, and heating systems may need to be altered (e.g., bigger radiators). That means fabric measures like insulation are necessary (to make ASHPs viable) even if they are not sufficient on their own to cut emissions. They also support immediate reductions in fuel poverty, and (even if they aren't being installed at the same time) make it easy to deploy heat pumps or other zero carbon solutions at a later date. As such:

- We need to stop using gas fired heating
- We need a large-scale rollout of heat pumps this decade

- We need widespread insulation improvements to make homes suitable for low carbon heating technologies (including heat pumps), including retrofitting over 887,000 homes to move from EPC grade D or lower, to a C or above.
- We need to give people the confidence to move from their current heating system to one which can be perceived as novel and complex.

While significant behaviour change is not currently needed to increase building retrofit, residents will need some education on how to best use the technology as heating response times are slower than a gas boiler, providing more constant, controllable stable temperatures.

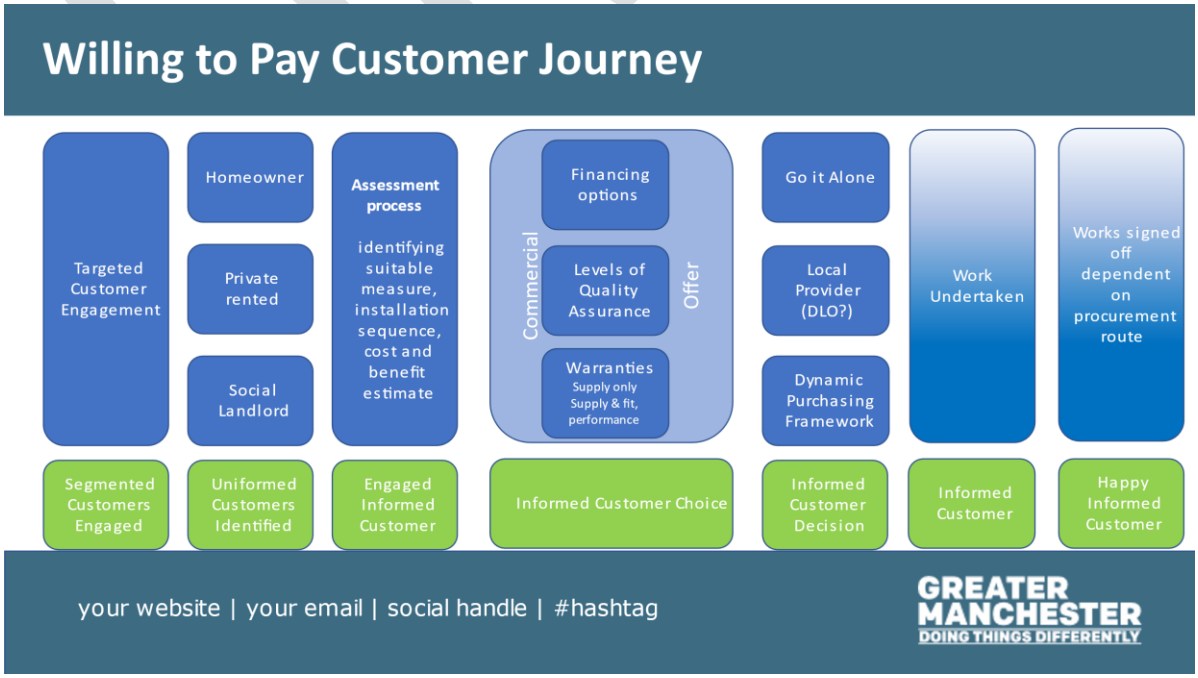
Further work is also needed to demonstrate to place based regeneration organisations, departments and future Mayoral Development Corporations, the role and benefits domestic retrofit can delivery against wider policy objectives such has health, poverty, and equality. The inclusion of retrofit measures into such place-based schemes would help develop the market and increase understanding and acceptance in the wider community.

**How will we achieve this?**

<u>Owner occupiers and the private rented sector</u>

To enable an at scale retrofit market to develop, action is needed in both the social sector and the willing to pay market (private landlords and owner occupiers). To help catalyse this willing to pay market, GMCA is looking to procure a vehicle, (aka GM Retrofit) which will create a flexible customer focused end to end service. The service will assess a home, clearly outline what retrofit actions are needed, the order the work needs to occur in, and the expected costs and sources for finance, such as the Heat Pump Grants Customers can then choose how to progress the works, including contracting GM Retrofit to deliver the improvements. To support the uptake for renewable heating in the Private Rented sector GM is looking to develop a Good Landlord Charter which will recognise those rental properties with good energy performance and low carbon heating systems.

The RetrofitGM scheme is looking to enable a Market which can retrofit over 61,000 homes each year, although for the reasons identified this will take time to achieve.



The social rented sector

Around 20% of GM's 1.2m households live in social housing. On average these tend to have better energy ratings than Private rented or Owner Occupier home, but 138,000 will still need and will benefit from, retrofit improvements to make them suitable for renewable heating and to meet the current Minimum Energy Efficiency Standard by 2030. Social housing providers have the ability to send the retrofit market a clear signal as to the scale, nature, and timing of the uptake of renewable heating and any associated retrofit measures. By using Social Value clauses in the procurement of such work, they can stimulate both the provision and uptake of a range of retrofit skills. If this approach is orchestrated with wider public sector procurement, GM could create a de fecto GM standard. This collaborative approach is needed to create a fully functioning retrofit market, which is able to specify minimum standards for key technologies, and which in turn will reduce the unit cost

The current picture in the sector is mixed with some Providers already committed to installing no new gas boilers, others looking to make similar commitments, while some have no stated plans to stop like for like replacements for gas boilers. Further work is needed to galvanise those in the sector who are committed to GM's 2038 goal. We need to create a clear pathway with timelines for both the phasing out of gas boilers and the number of properties which will need to be improved. Such an approach will also make it possible to better phase the necessary works over time. This is important as it will help social housing providers to avoid a 'hump' of work as we approach the 2030 deadline, a 'hump' which would put excess demand on retrofit suppliers and drive-up costs. The shape and size of this programme can then be communicated to the market and skills providers to inform and stimulate interest. At the time of writing the sector has plans to retrofit around 7,200 of 138,000 homes which need it with an investment of £118m investment.

In addition, the GMCA through the Buildings Challenge Group will look to engage with major housebuilders, the Green Building Council and other relevant parties to determine how the learning on net zero new build can be disseminated to catalyse the uptake of new ways of working.

**Renewable heating and generation supply chain**

Suppliers who want to install renewable energy technologies need to be registered with the Microgeneration Certification Scheme (MCS). This means we can use MCS registration data to better understand the capacity of the renewable energy technology installation market. There are currently 39 MCS-accredited installers in Greater Manchester (though this does not include any of the associated ancillary building work and its supply chain).

The MCS data can also tell us what technology has been deployed, its location, and the tenure of the properties in question. This means that monitoring the number of MCS accredited installations in GM (and how many were done by local companies) can help us to monitor and understand the capacity of the local supply chain to deliver the demand. By combining this with the number of MCS installs that were delivered by GM companies elsewhere in the UK, we can estimate the current capacity of GM's market.

**Commercial**

In 2019 carbon emissions from heating and cooling buildings in the commercial sector amounted to 1,190 kt$CO_2$e, around a third of that level emitted by the residential sector. Unlike the residential sector electricity makes up 56% of the emissions, with the remaining

arising from gas heating systems. While the problems faced by building owners are very similar in nature to those faced in the residential sector for Owner Occupiers and Landlords, the creation of a viable business case is critical. As such the previously stated challenges of expenditure on building fabric improvements (retrofit) are not wholly reflected in the assets value and the spilt incentive where a landlord invests but a tenant realises the benefits are critical barriers.

Similar to the domestic sector many commercial building owners are not aware of what they need or can do to their buildings to retrofit them for a zero-carbon future, due in part to the market failures a outlined above. This challenge is compounded in this sector as there are a broader suite of technology solutions and more properties require bespoke interventions, making it harder for the owner to determine the right course of action.

Increasing the number of commercial buildings which are or can be heated with renewable will not only reduce GM's carbon emissions but will support the ambitions of their tenants, especially SMEs. For many tenants their inability to reduce their carbon emissions from the buildings they occupy is a major barrier to their zero-carbon transition.

**Where do we need to be?**

By 2030, all commercial buildings need to have and EPC of B or above, so they are suitable for renewable heating systems. At face value the Minimum Energy Efficiency Standards (MEES) should drive this change as this is the standard set, but this is caveated with "where cost effective". In addition, the lack of rigorous enforcement of MEES means that this Standard alone will not drive the change at the pace needed. To do this requires a suite of solutions which are similar to those needed in the domestic sector, such as:

- Access to independent advice which outlines what retrofit actions can and need to be undertaken and an estimation of the cost involved – a Commercial Retrofit Action Plan
- Access to patient capital, which could be linked to a property or portfolio of properties
- Access to rental agreements which share the ongoing benefits of retrofit with the landlord
- Access to proven Energy Service Company (ESCO) providers who turn heat into a service and undertake whole building upgrades.
- Clearly outlined changes, on when, and at what magnitude taxation will shift from electricity to gas, creating a stronger business case for 'pay to save' investments.
- Consistent strong enforcement of MEES

**How will we achieve this?**

Greater Manchester has diverse commercial letting portfolio, this ranges from domestic scale dwelling e.g., local shops and care homes to destination retail outlets and large multi-floor offices and mixed tenure buildings. As such may of the mechanisms being put in place to support the domestic sector, will if structured appropriately support and enable landlords to retrofit their properties. These include new financial products, an increased awareness and use of green leases and the use of Energy Service Companies (ESCOs). For smaller properties the end-to-end retrofit vehicle being developed for the domestic sector, GM Retrofit, will also be able to support landlords increase their EPC to a B, the minimum energy efficiency standard by 2030.

To help the sector better understand the need for retrofit, and what measures can and need to be taken, the GMCA will discuss with The Growth Company, and its Business Growth

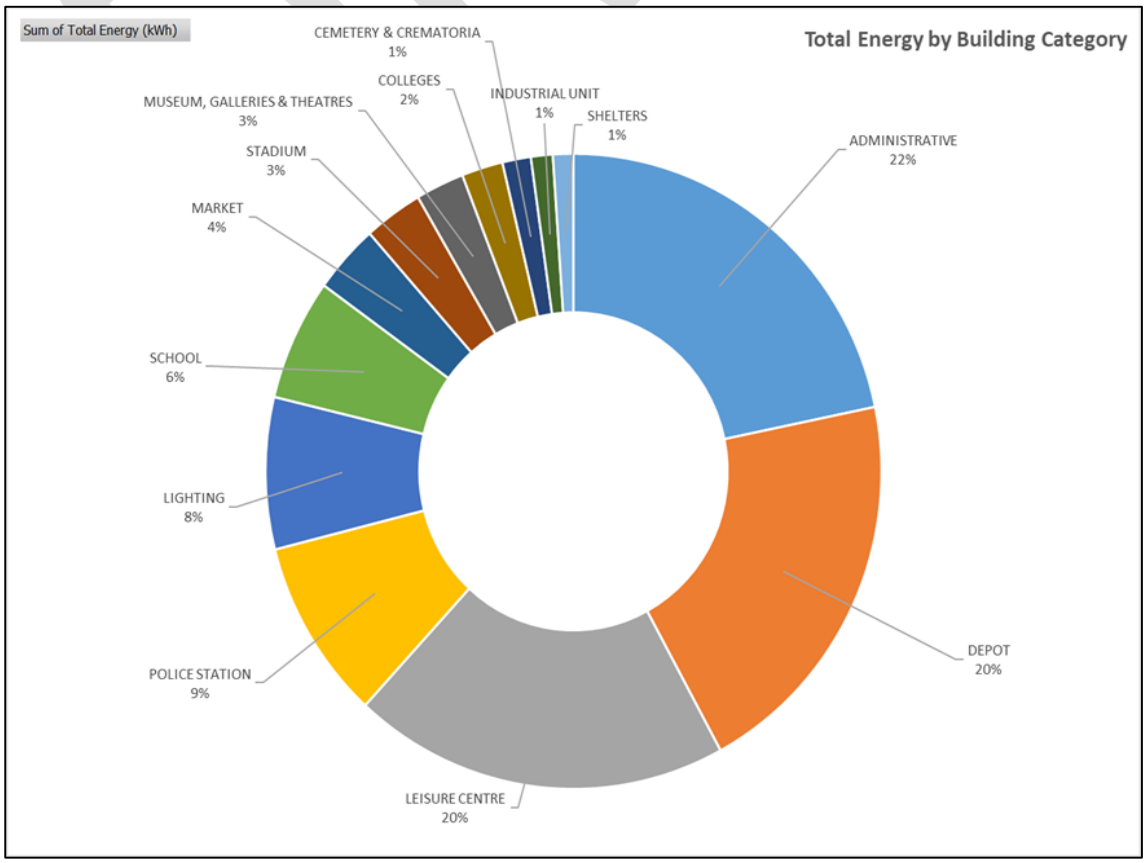
Hub, what role they can take to support the sector. This could build on the support they give via their existing funded programmes and through MIDAS, Business Finance Solutions and Marketing Manchester.

One of the key challenges the sector faces is that the business model case for retrofit is not always strong enough to enable investment and while changes in energy taxation policy (moving taxes from electricity to gas) will help, these are not yet timetabled so cannot simply be factored into future cost/benefit. This challenge is further exacerbated by the fact that in some cases tenants need to move out (or the space is vacant) which further challenges the business case. For this reason, there is a clear opportunity to bring in innovate products and services to enable commercial retrofit to work within the current tax and property valuation landscape. As such, The Energy Innovation Agency, and partnership between: GMCA, The Growth Company, SSE Enterprise, Hitachi EU, Bruntwood, The University of Manchester, Manchester Metropolitan University, The University of Salford have identified Commercial Retrofit of as of its key challenge areas. Their aim is to help secure the rapid adoption innovative solutions which will enable the acceleration of commercial retrofit, using the Bruntwood estate and others as testbeds.

To encourage the adoption of retrofit Measures GM is looking to introduce a Good Landlord Charter, similar to the Good Employment Charter with recognises those who are supporting Greater Manchester shared objectives to decarbonise out buildings by 2038. Underpinning this drive to improved energy efficiency are the Minimum Energy Efficiency Standards which state that all commercial building will need an ECP B or greater by 2030. MEES will also require increased enforcement alongside the encouragement provided by the Good Landlord Charter. This backstop date should encourage and motivate the laggards who fill find it increasingly difficult to rent their properties.

**Public**

Greater Manchester's Public Sector is a big contributor to heat-based emissions (emitting 505,000 $tCO_2$ per annum, or 4.3% of GM's total $CO_2$ carbon footprint). To put this into context, it is equivalent to Wigan's entire transport emissions, or 80% of the combined emissions of all home heating across both Oldham and Rochdale. For GM to remain within



its carbon budget, the public sector needs to lead from the front, sending a clear message to the supply chain, and society at large that such rapid change is both needed and should be welcomed due to the positive outcomes it will deliver. A lot of work has been done to understand what individual public sector buildings emit and what function they provide. Two thirds of the emissions of public sector buildings come from administrative building, Depots and Leisure Centres. Through the Public Sector Decarbonisation fund, 150 buildings are currently being retrofitted, with an investment of £78m saving an estimated 9,000 $tCO_2e$ per annum (1.8% of total Public Sector Emissions). There is also the need to retrofit over 70 local authority-controlled schools per annum at an average cost of circa £1m each. In October 2021 the Government announced a series of measures which will support the public sector to decarbonise its estate, making available £1.45bn available over the next 3 years, through competitive bidding. While this is welcome, and if successful will help decarbonise some of GMs public estate, it is not at the scale needed to meet our carbon budgets. To do this the public sector needs to develop business cases which enable it to access finance which could be PWLB, Local Green Bonds or the use of Energy Service Companies (ESCOs). It will need to do this at an unprecedented scale and speed and will need to dedicate resources, both people and capital to make this a reality. To do this Public Sector Bodies need to adopt a “war footing” creating a more streamlined decision making and governance structure is needed which can support rapid deployment while ensuing the necessary level of scrutiny. This needs to rise about the current challenges and competing pressures and take a strategic view to secure the changes needed.

**5. Conclusion**Heating our homes and buildings with renewable heating will not only support our Climate Change objectives it will make significant inroads in addressing some of the wider challenges Greater Manchester faces as we move out of the pandemic. The scale and longevity of the opportunity, will if addressed in a systemic way, accelerate the realisation of GM’s wider strategic objectives. This is why the refreshed Greater Manchester Strategy puts climate change and inequality at its heart, and why all actions are viewed through these twin connected lenses. We recognise this opportunity as one which will only arise once-in-a-generation, able to deliver substantial carbon reductions, environmental and health benefits for our people, whilst also creating new green industries and jobs that capitalise on our outstanding research assets and large low carbon goods and services sector.

The retrofit market suffers from considerable and systemic market failures which will need to be addressed to realise a fair and just transition to a net zero carbon society. Without intervention the market will be limited to those who have the knowledge, desire, and ability to pay for the works, limiting the benefits to those most able in society. This risks further entrenching inequality as failing to achieve the transformational scale needed to address Climate Change will limit the impact on wider policy objectives. This will ultimately cost the economy and society, particularly those least able to afford it, and with the lowest carbon footprint more.

The Retrofit Taskforce will drive systemic action, covering:

- The identification, stimulation, coordination and realisation of building retrofit across all sectors and tenures, to provide confidence to the market in order to secure the necessary investment in the provision of a skilled workforce

- The development and deployment of new financial products and services which gives building owners access to affordable funding which enables them to undertake the retrofit. This may also look at local green municipal bonds which enable GM's residents to accelerate the transition

- The provision of local 'retrofit' training course places which provide individuals with the knowledge and skills need by the sector, at the time when they are needed. This will cover further and higher education providers, including craft and more specialist roles such as heating engineers and retrofit coordinators

- The collection, verification and analysis of data and other key performance indicators to monitor progress towards the goal of all residential properties having an EPC of at least a C by 2038, and Commercial properties having and EPC of B or above by 2030.

This will be done in such a way as to maximise local social, economic and environmental impact, ensuring that the opportunity retrofit provides is realised in a way which is fair and just and acts as a driver for the wider societal changes needed post pandemic.

# 6.0 Implementation Plan

| | Short term<br>(0-9 Months) | Medium term<br>(9 – 18 Months) | Long term<br>(18 – 36 Months) |
|---|---|---|---|
| **SKILLS** | | | |
| **Skills** | Retrofit Skills hub starts: 165<br><br>Bootcamp Starts: 145<br><br>Retrofit Skills Hub starts (315)<br><br>Bootcamp Starts: 145<br><br>Release of Green Economy Skills Intelligence Report<br><br>Retrofit Skills Hub Starts: 395 | Retrofit Skills Hub Starts: 265<br><br>Evaluation of programmes, re-development of funding<br><br>Ongoing deployment of AEB, other funding | |
| **Market** | Some New Build<br><br>Localised small to medium sized social housing retrofit projects | Increased social housing (When we have the levers to drive the market)<br><br>Public Estate (top 50 buildings)<br><br>New Build | Need on scale across public and increasing private |

| | Short term<br>(0-9 Months) | Medium term<br>(9 – 18 Months) | Long term<br>(18 – 36 Months) |
|---|---|---|---|
| | | Increasing privately owned retrofit 'able to pay' | |
| **Approach** | Onsite training on live projects<br><br>GMCA research into curriculums for trade and specialist roles | Increased flexibility in funding options for retrofit training | Embedding of retrofit core skills in wider curriculum |
| **Occupations** | Reskilling and upskilling for traditional building trades, electrical and plumbing installation<br><br>Opportunity to develop multi-trade routes and add on trades for existing workforce<br><br>For current trades upskilling add-ons for retrofit design, advisors (lower-level building pathways to higher level retrofit coordinator)<br><br>Upskilling CPD for professionals (architects, surveyors, planners, project managers) to increase employability. | Development of new retrofit coordinator role with increased need for client coordinator role<br><br>Assess additional roles from energy group bringing in wider energy roles for example to install solar PV | |
| **Actions** | Design training which meets PAS2035 standards and new Part L of Building Regulations to upskill and retrain as well as embed in | Shared training facilities for upskilling and new entrants<br><br>Align traditional trade and | |

| | Short term<br>(0-9 Months) | Medium term<br>(9 – 18 Months) | Long term<br>(18 – 36 Months) |
|---|---|---|---|
| | existing pathways.<br><br>Potential to develop a new training to add on a trade for current workforce<br><br>Potential to develop new more highly skilled multi-trade pathways (T-Levels)<br><br>Create new pathways for upskilling existing trades to become retrofit assessors and designers as this training is at a similar level as an add on<br><br>Develop accredited CPD for professionals which meet standard for retrofit and gives them an employment edge/specialisation | profession pathways to include retrofit standards | |
| **Funding and Finance** | | | |
| **Programme** | GFI hire a GM programme manager.<br><br>Programme strategy developed and agreed | | |
| **Local Climate Bond** | Local Climate Bond pledge | Launch Initial Bond (subject to diligence) | Rolling programme of Local Climate Bonds |

| | Short term<br>(0-9 Months) | Medium term<br>(9 – 18 Months) | Long term<br>(18 – 36 Months) |
|---|---|---|---|
| | Pipeline selection | | |
| **Property Linked Finance** | Establish legislation changes required. | Design Pilot Scheme<br><br>Advocate for legislation changes | Launch GM Pilot |
| **Demand aggregation** | Develop GM Pilot | Launch GM Pilot | GM roll out |
| **Green Mortgages** | Lender Roundtable | GM Green Mortgage Launch | |
| **Green Rental Agreements** | Integrate with Good Landlord Charter<br><br>Identify Pilot Partners | Launch Pilot | |
| | | | |
| **Delivery** | | | |
| **Green Homes Grant**<br>(GMCA secured £27M of funding to run the Green Homes Grant Local Authority Delivery Scheme in Greater Manchester) | (Advice), Saving money and carbon<br><br>1800 homes receiving energy efficient installs | | |
| **Sustainable Warmth Funding**<br>GMCA submitted a bid. (January 2022 to March 2023) | Awaiting Outcome of bid submission | 1200 low-income homes improved | |
| **Retrofit GM**<br>A consumer led proposition aimed | A consortia of delivery partners identified | | 12,000 homes improved |

| | Short term<br>(0-9 Months) | Medium term<br>(9 – 18 Months) | Long term<br>(18 – 36 Months) |
|---|---|---|---|
| at the willing to pay market | Launch of proposition of Greater Manchester residents | | |
| Public Sector Decarbonisation | | | 210 buildings retrofitted |
| Number of Schools Retrofitted | Develop a pipeline of Schools to be retrofitted and the necessary business cases | Develop a toolbox for schools and Governors to speed catalyse retrofit measures in schools | 210 schools retrofitted<br>Template Business cases produced to speed up future retrofits |

# Annex 1: Performance Metrics [draft tbc]

Skills, Finance, Delivery

| **Metric –** mean average over 3 years | **Value** |
|---|---|
| Number of public buildings retrofitted | 70 |
| Number of LA controlled schools retrofitted per annum | 70 |
| Number of Socially rented homes retrofitted | 2,400 |
| Number of Willing to Pay owners engaged | 24,000 |
| Number of WTP homes improved (over 3 years) | 4,000 |
| Number of EPCs moved from below D to C and above without Public Support | 8,400 |
| Number of MCS renewable heating systems deployed in Greater Manchester | Monitor |
| Monitor incremental domestic upgrades via the median average movements in kWh/m$^2$ capture in EPCs | Monitor |
| Number of Retrofit Equivalents* | Monitor |
| | |
| Number of new Trustmark accredited installers in GM | 400 |
| Number of construction workers upskilled | 1,100 |
| Number of new apprentices in Construction | 1,200 per year |
| Skills funding deployed | £xxx |
| | |
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* Similar to FTE, this is a measure of other overall improvement in the housing stock and is equivalent to the SAP rating increasing by 7 points e.g., if the total SAP score increases by 42, then this is 6 retrofit Equivalents