Department for
Energy Security
& Net Zero

Green Home Finance State of the Market Review

Report 3

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Contents

Glossary

Term	Definition or description
The Department	The Department for Energy Security and Net Zero, also referred to as the Department
EPC	Energy Performance Certificate
FCA	Financial Conduct Authority
GHFA	Green Home Finance Accelerator
GHFIF	Green Home Finance Innovation Fund
‘Greenium’	A value premium for a low carbon or energy efficient property
Green home finance	Green home finance products to enable the uptake of home energy efficiency and low carbon heating measures.
LA	Local Authority
MEES	Minimum Energy Efficiency Standards
Pay as you Save	Pay as you Save is a financial concept to provide finance to pay for retrofit measures, where the loan repayments are less than the predicted energy bill savings made from installing the measures
PRA	Prudential Regulation Authority

Executive Summary

This report provides findings from a qualitative review of the state of the market for green finance for low carbon and energy efficiency home retrofits. Interviews were conducted in Spring 2023 with key industry stakeholders, identified from organisations that were successful and unsuccessful in applying for funding for the Green Home Finance Accelerator programme (GHFA), and organisations that showed interest in the GHFA but did not apply. The GHFA, funded by the Department for Energy Security and Net Zero under the Net Zero Innovation Portfolio (NZIP), aims to stimulate innovation in the green home finance market by supporting the creation of a range of green finance products, incentivising low carbon and energy efficiency retrofits for homeowners.

The review found that **a diverse range of organisations are currently operating within the green home finance market, extending beyond mortgage lenders and technology installers.** Many organisations are actively engaging in green product development in anticipation of future commercial opportunities. These organisations operate across finance, energy and retrofit sectors and incorporates central and local government, regulators, and third sector organisations. It also includes innovating companies that are keen to disrupt the market with new products. Together these actors form a “green home finance ecosystem” where these organisations are interconnected in different ways according to their roles and expertise in certain areas.

While some organisations across different groups are connected, several research participants stated that, in general, **organisations in the ecosystem are failing to collaborate effectively due to a lack of understanding of roles and capabilities in the context of the market**, creating a barrier to scaling up green home finance products. Participants gave a number of examples in which organisations do not connect or work together effectively, including missing or misaligned incentives such as the tax treatment in the private rented sector working against green finance products, a lack of previous working relationships and difficulties in communication between actors, and competing internal priorities as some actors, like traditional lenders, do not prioritise green finance product development.

The GHFA was perceived to address these barriers as it facilitated new connections and strengthened existing relationships, growing the ecosystem and enabling green home finance product innovation. Benefits of these new connections were given as data sharing, specialist knowledge on greening homes that finance organisations felt they lacked, and access to potential new customers. The GHFA was deemed by many to have coincided with broader consideration of green home finance in their organisations.

While the **number of green mortgage products has risen in recent years**, including those with discounted interest rates, **research participants viewed current products as unambitious** with very low uptake compared to the larger home finance market. It was suggested that uptake is often confined to single measures, rather than the whole home retrofit that research participants felt was needed for the transformation of the housing stock. The market is currently targeting renewable microgeneration rather than fabric measures like insulation, which may need more support to make whole house retrofit attractive.

Research participants described how **different customer sub-types required different product types, meaning that the products, and the cost of retrofit actions, need to appeal to a homeowner or landlord's specific financial case**. For example, older homeowners may not be eligible or willing to take on long-term traditional mortgages. Less-well known differences were noted, like the relative importance of a home's capital value appreciation in more affluent areas, compared to rental value in areas with lower house prices.

Current consumer demand was deemed very weak compared to the larger home finance market, but several trends are encouraging product development and consumer demand. Several aspects were believed to be inhibiting customer demand including disruption and lack of interest, with upfront cost being a major barrier. Confusion over the available retrofit options, or lack of trust in technologies or installers, also appeared frequently in participants' responses. However, positive trends are emerging, such increased homeowner demand for solar PV installations, consumer concerns about rising energy prices encouraging retrofit, and regulation of minimum energy efficiency standards (MEES). In the long term, most organisations felt that there was a clear fit between green home finance and their strategy.

The UK retrofit supply chain was deemed insufficient by participants and is far from operating at the levels of capacity and skills required. This was blamed on weak demand signals, or competing demand for non-energy home improvements, and that this had been worsened by recent market crises and 'stop-start' incentive programmes. It was perceived that those in the broader building trade were approaching the retrofit agenda with caution, only investing in training and capacity building when there were demonstrable and long-term supportive conditions in place. Solutions to unlock these supply chain constraints recommended by research participants included using standardised contracts to prevent multi-layered sub-contracting, and developing an apprenticeship scheme to acquire specific retrofit skills.

Finance market challenges include having a difficult regulatory system and rigid existing finance market structures. Interviews suggest regulation does not specifically support companies trying to finance green initiatives, and needs to work with the finance sector to ensure incentives are consistent and support innovation. It was flagged that some market structures do not adapt well to retrofit lending. For example, mortgage finance is the most cost-effective private source of finance, but lenders tended to have weak customer relationships and were not well place to target customer trigger points.

Respondents felt that significant support from Government is needed to generate demand for green finance products. A clear roadmap detailing the direction of travel in the next 5-10 years would help set the direction for the whole market, and to provide clear signals on the upcoming changes to the market. Support will raise awareness and demand for retrofit and provide trusted sources of advice and guidance which was seen as a lacking.

1 Introduction

Building on the Green Home Finance Innovation Fund programme (GHFIF) funded under the Energy Innovation Programme, in 2022 the Department for Energy Security and Net Zero (hereafter refer to as 'the Department') launched the Green Home Finance Accelerator programme[1] (GHFA). The GHFA is a £20m programme under the Net Zero Innovation Portfolio (NZIP) designed to provide innovation funding for the development of green home finance products to enable the uptake of home energy efficiency, low carbon heating, and micro-generation retrofit measures.

This report builds upon previous research undertaken as part of the GHFIF evaluation and serves as a baseline input to the evaluation of the GHFA, which will help understand the influence of the GHFA on developing the market for green home finance. Previous state of the market reviews were published as annexes to the GHFIF evaluation reports.[2]

The aim of this state of the market review for green home finance was to determine the scope and details of the current offerings of UK lenders for homeowners to invest in energy efficiency and/or low-carbon heating improvements of their domestic dwellings. The report also explores stakeholder views of the GHFA and, for applicants, their experiences of applying.

2 Methodology

This review was qualitative, aiming to explore in detail the perceptions of the different types of actors[3] involved in green home finance. It includes some quantitative data on the number and types of green home finance product available in the UK, calculated as part of a previous state of the market review[4].

Forty-two in-depth semi-structured interviews[5] were conducted, with successful and unsuccessful applicants to GHFA funding, and with stakeholders who had shown interest in the GHFA programme but chose not to apply (non-applicants). These were purposefully sampled from a sampling frame of 143 individuals that had consented to being contacted about the research, with the view to recruit a variety of applicant and organisation types. Ninety organisations were invited to participate in an interview between May-July 2023. Interviews

[1] https://www.gov.uk/government/publications/green-home-finance-accelerator
[2] Find out more about the GHFIF evaluation at https://www.gov.uk/government/publications/green-home-finance-innovation-fund-evaluation
[3] Actors refer to the organisations involved in the green home finance market. Please see Figure 1 for more information on actors and their roles.
[4] A previous state of the market review update, undertaken in Spring 2023 included a desk research and a quantitative assessment of the number of green home finance products on the market. It can be found in the published annexes to the GHFIF evaluation (Annex B): https://www.gov.uk/government/publications/green-home-finance-innovation-fund-evaluation
[5] Each lasting approximately 45 minutes.

were conducted, recorded, and transcribed using MS Teams, and were subsequently coded and thematically analysed.

Although a broad and comprehensive range of stakeholder groups participated in this research, the findings in this report are not representative of the views of the entire green home finance market. The findings also reflect the views and perspective of stakeholders in May/June 2023, and therefore do not account for changes in the market or sector since then. More information on the methodology, including the topic guide used for the interviews, can be found in Annex A.

3 Findings

3.1 Participants in the UK green home finance market

Key Findings:

A diverse range of organisations are currently operating within the green home finance market, known as the "green home finance ecosystem", which extends beyond mortgage lenders and technology installers.

Organisations in the ecosystem are failing to collaborate effectively due to a lack of understanding of roles and capabilities in the context of the market, creating a barrier to scaling up green home finance products.

Overview of the market

Approximately 80 products that can be defined as green home finance products are available in the UK in 2023[6], however, the overarching view of stakeholders is that the market is still in the very early stages of development, with respondents describing it as "fragmented":

"*A very fragmented industry in terms of installation and assessment*."
Technology provider (unsuccessful GHFA applicant)

"*Lots of good thinking happening around the market from different parts of the value chain: but it's not joining up fully as yet. I think we are still kind of at the beginning of that.*" Financial services (successful GHFA applicant)

A broad range of actors are currently operating within the market, either within the finance sector, the home retrofit sector, or both, and have clear interests in its future development.

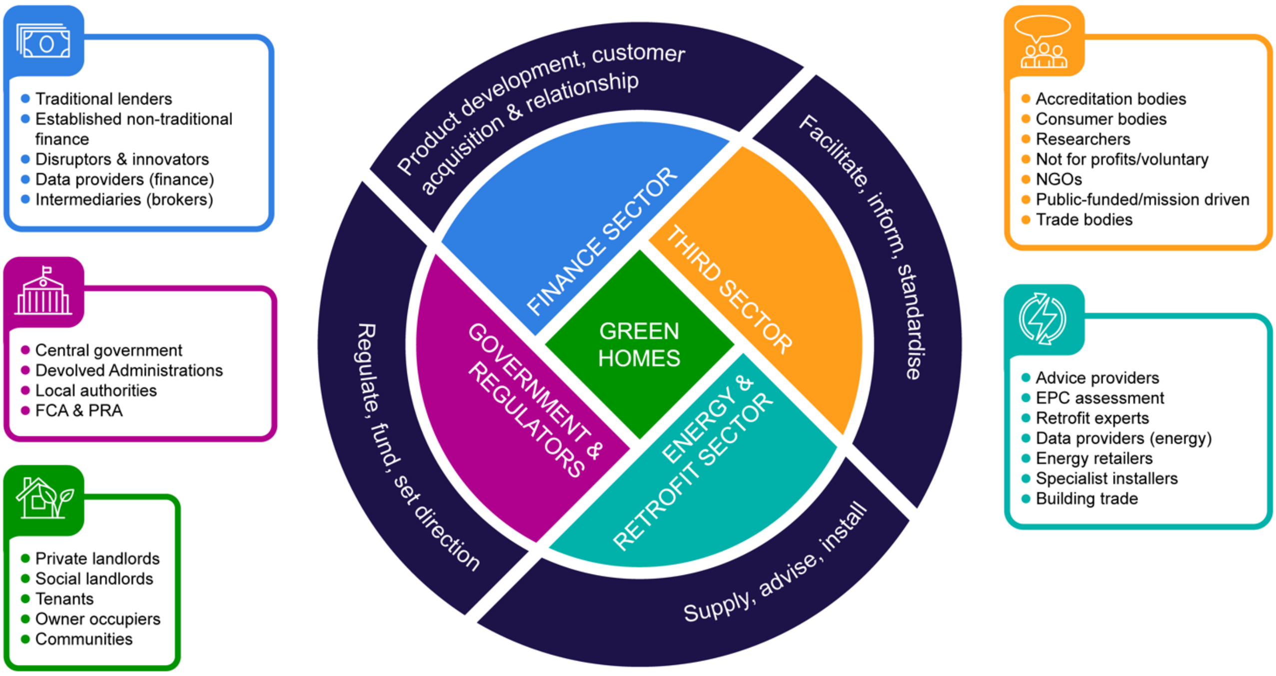
Figure 1 provides an overview of the main stakeholder groups and sectors, providing a high-level representation of what some participants termed the green home finance market 'ecosystem'. It is based on participants' descriptions of their respective roles within the green home finance market, and others who they were already working with. It also includes those who they were not working with, but whose future role in the ecosystem they perceived as important. Participants described the market as complex and 'multi-faceted', requiring a broad range of skills and expertise from different organisations and sectors to develop and deliver attractive green home finance products and services for customers. New collaborations within the ecosystem were deemed crucial to accessing this knowledge and skills, without which innovation in the market might not occur.

[6] As of February 2023, Green Home Finance State of the Market Review – Report 2.

"*The integration with the other parties in the ecosystem to improve the customer journey is important*." Lender (successful GHFA applicant)

"*This is a multidisciplinary project, and I wouldn't be able to deliver it alone with my domain knowledge. I need to bring on board partners*." Retrofit provider (successful GHFA applicant)

Figure 1: Key actors within the green home finance market 'ecosystem'. [7]



Many participants were excited by the potential of this market and actively engaging in current market developments, in anticipation of exploiting future commercial opportunities within it. Relationships appear to be developing and evolving quickly between different actors as they explore how green home finance offerings can be effectively developed and delivered. There was a general perception that different groups of actors did not know each other well enough and were still understanding their respective (current and potential future) roles, skills, and capabilities in the context of the development of the market.

Finance sector actors

There are a range of different types of financial lenders active or interested in developing the green home finance market, and we consider these in depth in this section. As shown in Figure 1, interview participants broadly self-identified into three core lending groups, each of whom has a different focus and interests:

[7] Based on participants' own identification in interviews and does not therefore necessarily include all possible actors.

- **Traditional lenders** – including very large mortgage lenders, such as high street banks and building societies[8], who were mainly seeking to develop mortgage-based green finance offers to existing and new customers. This group also includes specialist mortgage lenders focused on lending to specific customer groups such as private and social landlords;
- **Established non-traditional lenders** – including lenders providing other types of finance (i.e. non-mortgage based), who were focused on evolving existing financial products and services, such as personal loans and leasing schemes, to suit new green home finance applications; and
- **Disruptors and innovators** – including finance and retrofit sector entrepreneurs focused on developing new products and finance mechanisms specifically for the green home finance market.

Each group can be differentiated by their strategic interest in green home finance, the specific types of products and services being offered or being developed, and the factors driving their participation in the market.

Strategic interests in green home finance

Traditional lenders are making tentative initial moves within the green home finance product development arena, currently viewing this as a side concern, but one that is likely to grow in strategic importance in the near future. They see current green finance product development as research to better understand customer demand. Some other participants described traditional lenders as risk-averse and slow-moving, but vitally important given their very large lending portfolios. Established, non-traditional lenders, on the other hand, perceive green home finance as a strategic market opportunity area. Products were deemed to be less cost-effective in terms of interest rates compared to secured finance offered by traditional lenders, however they were also perceived to be more appropriate, flexible, or customer friendly. Other interviewees perceived them to be better suited to adding new data (e.g. finance and home energy performance data) into their systems to support new and more flexible lending products and services.

Market disruptors and innovators, such as finance entrepreneurs, are seen as experts in finance and retrofit solutions who are starting to branch out and develop new green home finance solutions that could change and potentially disrupt current home finance models. Currently, however, product and service development activities are at an early stage of development, and actors were currently operating at a small scale.

Market activities and the types of green home finance products and services

Traditional lenders are principally developing ‘green’ mortgage products with discounted rates to fund green measures (including cash back offers), developed as niche extensions of mainstream products. These are currently operating at a very small scale, and are seen as

[8] In the UK, the mortgage market remains dominated by the “big six” high street lenders, with a combined market share of 72%. Data from UK Finance issued July 2023, showing largest lenders table for the total mortgage market 2022 (table MM10) https://www.ukfinance.org.uk/data-and-research/data/largest-mortgage-lenders. Represents market share by value of gross lending and balances outstanding.

experimental but of increasing strategic importance, given current market conditions (such as high interest rates and energy bills) and interest in Net Zero.

Established, non-traditional lenders are focusing on green non-mortgage finance products. This includes personal loans, equity release finance, leasing schemes (e.g. for heating system replacements), co-operative finance schemes, and community-based or mission specific niche lending schemes, including small-scale existing government supported retrofit-specific lending.

Market disruptors and financial innovators are focusing on novel, retrofit specific co-operative finance models and new finance mechanisms, including customer acquisition through different types of company payroll schemes, or securitisation of retrofit credits. Products are typically at conceptual development stages, and are not yet market ready.

Drivers for participation in the green home finance market

For traditional lenders, drivers include current and anticipated regulation, namely Minimum Energy Efficiency Standards (MEES), and Government's Improving home energy performance through lenders consultation from 2020, as well as demand for environmental, social and governance (ESG), and achieving strategic Net Zero emissions commitments or targets. It should be noted that data collection was carried out prior to the Prime Minister's announcement in September 2023 that the Government will not take forward proposals that would require private landlords or homeowners to upgrade homes to EPC C[9].

For established, non-traditional lenders, green home finance has high strategic importance within their organisational activities, and therefore drivers include the commercial exploitation of new market opportunities.

For disruptors and innovators, actors are aggressively approaching the market, sensing future opportunities in the space, with green finance perceived strategically as 'mission-critical'. They are driven by a desire to disrupt the market to achieve a much greater scale of retrofit.

Relations with other parties and other sectors

These actors were all interacting with relevant industry bodies and regulatory authorities, such as the Green Finance Institute (GFI)[10] and Financial Conduct Authority (FCA)[11]. Data providers of energy and financial data were very frequently mentioned. Lenders also interacted with market intermediaries, including mortgage brokers and the real estate industry. Such intermediaries are seen as being not very well aware or "not interested" in retrofit or green home finance, but are key stakeholders in the future development of the market[12].

[9] Press release can be found here: https://www.gov.uk/government/news/pm-recommits-uk-to-net-zero-by-2050-and-pledges-a-fairer-path-to-achieving-target-to-ease-the-financial-burden-on-british-families
[10] The Green Finance Institute (GFI) is an organisation, initially funded through the UK Government, that aims to support the mainstreaming of green finance in both the UK and overseas, and is a valued partner for market participants and policy makers.
[11] The FCA regulates the financial services industry in the UK. Its role includes protecting consumers, keeping the industry stable, and promoting healthy competition between financial service providers.
[12] Note, as these intermediaries did not directly comprise a large part of the sample for this work, we cannot test if this assumption is correct.

All of these finance actors, and particularly so the traditional lenders, were concerned about not possessing the necessary skills and experience to deliver all aspects of green home finance products and services. As a result, almost all of them are forging partnerships with others, such as energy and retrofit sector experts, and, often via these partnerships, are also engaging indirectly with other supply chain actors, such as retrofit installers. As one participant commented:

"*The more that we can kind of put heads together across the industry, I think that was kind of the main draw* [to participate in GHFA]." Lender (successful GHFA applicant).

Third sector actors

A variety of third sector actors were identified from the interviews. As shown in Figure 1, interactions with this group were considered by participants as important in a number of ways. This included a facilitating role for this sector, such as that of mission-driven organisations whose aim is to catalyse low carbon or energy efficiency retrofits. A broad community of interested research and innovation organisations was identified, involved in helping investigate new potential financial models and other issues to support take up of green home retrofit. Information might also be provided to homeowners by this sector, helping prospective customers for the finance and energy and retrofit sectors to identify and cost low carbon or energy efficient opportunities for their homes.

Finally, a standardising role was noted by participants, such as that of accrediting bodies, and encompassed current or prospective roles in standardising energy and retrofit professions and financial products. For example, industry and accreditation bodies help inform policy, set standards, and deliver industry guidance, and consumer bodies work to represent, support, and protect consumer interests. Both of these are highly applicable to low carbon and energy efficient retrofit installations in the home. These roles in the ecosystem were identified by participants in these third sector organisations, and by others outside them.

Energy and retrofit sector actors

The retrofit sector comprises core actors, including home energy advice providers and retrofit project design and delivery specialists, who support and work closely with the retrofit installer supply chain. These actors are currently comparatively small-scale specialist organisations that have evolved out of a range of different backgrounds, including architecture firms, the installation supply chain, and home energy advice provision, as market interest in green home retrofit has increased.

The role of these core actors is broadly to identify opportunities and design retrofit projects, engage and support prospective customers for installation, and to manage delivery, working with the installation supply chain. These activities can directly inform and integrate with finance products and services offered by the finance sector. The installation supply chain comprises specialist retrofit measure installers (e.g. heat pumps, energy efficiency measures) and the wider building trade involved in delivering necessary ancillary works (e.g. plumbing, wider renovation work).

These core actors are then further supported by others who are not directly involved in retrofit, but play other supportive roles. This includes energy data providers, such as smart meter and other home performance data, and Energy Performance Certificate providers, who help assess home energy performance, opportunities for retrofit projects and inform their costs and benefits. Energy suppliers can also help inform and support, or even directly undertake, retrofit activities.

Government and regulators

National government was seen as the principal source of policies and regulations influencing both finance and retrofit markets, and also as a funding source for specific market development activities, including GHFIF and GHFA. Government is also known to be supporting co-financing of retrofit measures through schemes including the Boiler Upgrade Scheme (BUS) and Scotland-specific Home Energy Scotland Grants.

At a local and regional level, local authorities (LAs) are also keenly involved and interested in supporting green home finance market development, driven by local plans or targets to help reduce home energy bills and carbon emissions within their local areas. Several LAs were supporting the development of local 'one-stop-shop' advice and guidance services to support householders' energy conservation efforts, and were looking to support green home finance mechanisms as part of their delivery mechanisms. For LAs, energy efficiency in housing was noted as a long-term interest, with LAs being involved in many programmes. For these bodies, retrofit aligned very strongly with climate commitments and social value concerns.

In the context of the development of the green home finance market, many participants perceived that green home finance was fundamental to achieving Net Zero goals in the domestic sector, and that the market needed to scale up at enormous pace over the next few years. However, both the finance and retrofit markets were complex and multi-faceted sectors in their own right. Bringing them together to develop the green home finance market would considerably add to this complexity, and much innovative effort was perceived to be needed to develop green home finance products and services that would be both attractive and helpful to domestic households.

3.2 Views and suggestions on the current state of the market

Key Findings:

Research participants described how different customer sub-types required different product types, meaning that the products, and the cost of retrofit actions, need to appeal to a homeowner or landlord's specific financial case.

Current consumer demand was deemed very weak compared to the larger home finance market, but several trends are encouraging product development and consumer demand.

Participants viewed current products as unambitious in terms of their additionality, incentives, and scale.

Finance market challenges include having a difficult regulatory system and rigid existing finance market structures.

Customers and demand for green home finance

The market for green home finance can broadly be split by tenure into owner-occupiers and the private and social rented sectors, with owner-occupiers being the largest group in the UK by number of dwellings[13].

The main target customer type in the owner-occupier market, are those who are 'able to finance'. Several participants described that most retrofit activity to date had been undertaken by a small number of households who could afford measures outright, who they called the 'able-to-pay'. A stated aim of some participants for the green home finance market was to target a much larger group of customers who were 'able-to-finance' measures.

"*'able-to-finance' is a market that we've tried different ways of trying to target to get that moving*". (GHFA non-applicant, retrofit provider)

According to participants, there is a wide variety of customer sub-types within ownership groups. For instance, homeowners who were seen as the most attractive customers were relatively affluent, such as middle-aged families who were likely to stay within their current homes for the foreseeable future. Interview participants also described how different customer sub-types required different product types, as, for example, older homeowners might not be eligible or willing to take on long-term traditional mortgages. Other interview participants noted the relative value of retrofit works to a home's capital value appreciation in areas with higher or rising house prices, compared to areas with lower house prices. Products and the associated cost of retrofit actions therefore needed to appeal to the homeowner or landlord's financial

[13] The 2021/22 English Housing Survey show that there are 15.6 million owner-occupied households (64%), 4.6 million private rented households (19%) and 4.0 million social rented sector households (17%). https://www.gov.uk/government/statistics/english-housing-survey-2021-to-2022-headline-report/english-housing-survey-2021-to-2022-headline-report

case in the most applicable terms, considering possible capital appreciation, or income maximisation if rental returns were more important to them.

Despite there being considerable anticipated future demand, overwhelmingly participants described actual current demand for green home finance as extremely low, and lenders with existing offers reported take up as being very small scale. The reasons described for this were attributed to well-known customer barriers around upfront cost, disruption, lack of interest, confusion or mistrust of retrofit solutions, and low number of available installers. These are highlighted in the quotes below:

"*The awareness is just so low… 40% of people don't even know what an EPC is*". Technology provider (successful GHFA applicant)

"*There's a lot of people who are saying, yes, we would like to do this, but we don't know where to start*". Local authority (successful GHFA applicant)

"*There's a whole plethora of obstacles - I mean you can take your pick - so they can't get an assessor for six months. And if they do, then there's no one to do the work*." Technology provider (unsuccessful GHFA applicant)

"*The red tops* [tabloid newspapers] *are always slating heat pumps and issues associated with them, but also it's cost parity at the moment … and the cost of electricity versus the price of gas it's borderline that you'd actually get a financial saving*". Local authority (GHFA non-applicant)

"*Retrofits are seen as costly, hard, and disruptive.*" Data provider, (GHFA successful applicant).

Many participants explained how demand for low carbon or energy efficiency measures had been affected by the current economic climate, which has paradoxically raised awareness of energy costs, whilst also reducing household capacity to take on additional borrowing to invest in retrofit works due to higher interest rates and inflation. Some participants had observed increasing concern about energy prices and a desire from homeowners to 'future proof' their homes from further increases. However, whether the homeowner was able to finance the low carbon or energy efficient improvements required depended very much on their individual financial circumstances.

"[Higher interest rates are] *going to be pretty devastating for everybody who comes off of a fixed rate…How can they take out additional borrowing?*"
Financial services (successful GHFA applicant).

"*There is the 'able-to-pay' core customers, where we have seen solar panel sales, for example, they've doubled all through the cost of living crisis. And I think that's consumers trying to push against that cost-of-living crisis, and guarantee their cash flow for years to come, and they're investing in their properties. But then you've got the customers who can't afford to do those things. I think that's where the government needs to step in and help*." Lender (successful GHFA applicant)

The owner-occupier market is the biggest long-term opportunity area, however, in the shorter term, there was perceived to be greater demand and activity amongst the rented sectors. Large landlords in both the private and social rented sectors were seen as attractive for green home finance as they were potentially motivated, due to recent regulatory changes such as MEES[14], but also more pragmatically because these actors had professional management and other resources that smaller portfolio or single property landlords did not. This offers scale in terms of retrofit opportunities, and cost effectiveness for finance solutions. However, even with MEES, landlord demand was not universally deemed strong:

"*I think the best way to describe it would be that all landlords know that something's coming, and they're going to have to act at some point. But I don't think the education or the knowledge is maybe where we want it to be.*" Lender (successful GHFA applicant)

One further suggestion was to aggregate retrofit or low carbon energy solutions at small community levels, such as streets or blocks of flats. However, interview participants observed that this made it even harder to design a product or incentives that suited the varied customer sub-types within even such small community groups.

Development of green home finance products

Participants who were not traditional lenders were unimpressed by existing green home finance market offers in terms of their additionality, incentives, and scale. Several participants noted existing products that only targeted properties with EPC A or B ratings were "*just churning new build between lenders*" (lender, successful GHFA applicant). Much greater scale was seen to be needed, "*moving the needle / dial*" was often the phrasing used, and several stated that any green home finance products must also avoid greenwashing[15].

For lenders, confidence in the existence of a 'greenium'[16] was perceived as a key influence that could be a 'game changer', and could cause a significant shift in the market. The effect of more generalised recognition of a value premium for energy efficient or low carbon property would help reduce risk and increase return, but for some participants data in the property market on this was still tentative, and not well recognised within capital markets.

"*Some properties that do have solar panels for example are selling for slightly more than a property on the same street that wouldn't have solar panels, it's becoming something that customers are searching for more*". Lender (successful GHFA applicant)

"[In capital markets] *you'll see very, very little differential between the pricing of a 'green' deal and a 'non-green' deal. And with some of the UK examples, you probably see maybe a*

[14] As described in section 3.1, data collection was undertaken prior to the Prime Minister's announcement that the Government will not take forward proposals that would require private landlords or homeowners to upgrade homes to EPC C.
[15] The process of conveying a false impression or misleading information about how a company's products are environmentally sound.
[16] A premium in the capital value of a property, resulting from the installation of home energy efficiency and low carbon heating measures.

maximum of about two basis points, which isn't an incentive for non-bank lenders to push on ahead." Lender (successful GHFA applicant)

Given the early development of the market, few participants viewed themselves as in direct competition with others. The only elements of actual competition that were noted were amongst traditional lenders, where one or two mentioned offers to the market that were perceived to be new and interesting[17], albeit within the context of overall low demand. Mainly, participants described relationships in the market as evolving and collaborative. The newest of which (and the greatest current focus) were the developing relationships between the finance and energy and retrofit sectors[18]. These actors were coming together, working to try and "knit together" two complicated and highly regulated sectors to make attractive offers for customers, which was described as a tall but exciting order:

"*We're not expert in decarbonising homes, that's not our area of expertise. It's not something we could deliver on our own. And so that is why we needed to bring in some industry experts, even partner with some industry experts*." Lender (successful GHFA applicant)

Several participants described 'whole house retrofit' and 'fabric first' as the correct or most effective approaches from an emissions reduction perspective. However, there was a recognition, particularly from those involved in retrofit delivery and the finance sector, that this is not always the way things happen in practice. As such, a 'measure-by-measure' approach (or smaller packages of measures) may be more pragmatic in reality:

"*Most people would do single or few measures rather than the full house*". Financial services (successful GHFA applicant)

Exploring the types of retrofit measures targeted within new or existing finance offers, there was a preponderance of renewable energy measures (photovoltaics (PV) and heat pumps[19]). With the exception of double glazing, there was less discussion within the interviews of fabric energy efficiency measures such as loft, wall, and floor insulation. Some participants had not actively considered this, and others stated that this was because renewable energy measures were seen as either more attractive (or visible) to customers. Some were aware of whole home retrofit and regarded it as important, but difficult to achieve. One participant mentioned that additional support for some fabric measures may be needed to align market delivery with effective demand reduction.

Increasing demand for green home finance

Interview participants generally view the 'supply-side' of the green home finance market (that is the availability of products and finance) as reasonably straightforward to develop, but see this development as dependent on the emergence of increases in demand for retrofit and low carbon measures more broadly. The most commonly noted suggestions for developing the retrofit market included Government providing a clear roadmap detailing the direction of travel

[17] For example, recent developments to introduce very low or zero interest offers by some providers.
[18] Who in turn have relationships with installers of retrofit measures and the broader building supply chain.
[19] Particularly air source heat pumps.

in the next five to ten years. This would help set the strategic direction for the whole market, many of whom are wanting to act, but the signals are not clear, not strong enough, or not in place, meaning that many are waiting to see what is going to happen next, within a very fluid and changeable market and political context:

"*Putting down* [a] *strategic road map. So … awareness that the change is coming and…a road map, instead of this nebulous concept that by 2050 everything's going to be net zero*". Local authority, (GHFA non-applicant)

Almost all participants described that significant support was needed to generate demand from householders. A few participants compared this to the shift that had taken place in electric vehicles:

"*I'll give you an alternate point of view in the electrification of vehicles. The sex appeal, is what it comes down to in marketing of the new car, the acceleration and the benefits that it offers greater than the current car is a reason that pushes me to finance it because I can't afford it, but I still want it… In home heating, you do not gain any perceived benefit as a human being from migrating your energy system from the old way to the new way and in fact you're paying to do so*". Finance sector (GHFA non-applicant).

Support was seen as needed to raise awareness and generate demand for retrofit, but also to provide trusted sources of advice and guidance, both of which were perceived to be considerably lacking. This was seen as fundamental, given broader perceptions that householders do not see retrofit as necessary or viable, and even if they did, they do not know where to start to tackle the issue. Some participants did not identify any sources of such advice that were available. Others had deliberately sought out partnerships with collaborators that they thought could provide such advice to feed into their product development. In addition, several energy and retrofit experts described the need for pragmatic services to support delivery, such as local loft clearance and boarding up services[20].

"*Look at the loft... The grants for loft installation that the government are funding and national organisations were delivering it they couldn't even spend the grant money because elderly people couldn't physically go up to go and empty that*". Retrofit lender (GHFA non-applicant)

From a finance market development perspective, the most commonly-discussed elements included ensuring simplicity and clarity in finance, and a focus on cost-effectiveness. Several participants noted the conceptual principle of retrofit packages that 'pay as you save' on energy bills as being interesting[21], but one lender with existing experience in retrofit lending described it as unworkable in practice.

"*The FCA don't like that, and we don't know if it's true [the Pay as you Save concept], so we're neutral. That's why it has to be a low interest rate… it really has to be so with our loans* [to

[20] Specifically including help to clear lofts of stored items (before insulation installation), followed by loft boarding to enable loft spaces to continue to be used for storage post-installation, and finally help to replace existing storage back into the loft once works have been completed.
[21] Despite initiatives such as the Green Deal utilising the concept having limited success in practice https://www.gov.uk/government/collections/green-deal-and-eco-evaluation

secure take-up], *it's up to 15-year term, no set up fees or early repayment charge*" Retrofit lender (GHFA non-applicant)

As described above, broad market recognition of the "greenium", evidenced by real and significant positive effects on property value, were described as potentially having a transformative effect in future.

"*OK, you're going to save yourself* [for example] *£2,000 per year on energy costs... But we're also going to add £20,000 to the value of your house as a result of this, suddenly [that] becomes very interesting...*" Retrofit sector (unsuccessful GHFA applicant).

Finally, flexibility in delivery for customers was also seen as important, in order to give householders choice and the ability to deviate in scope and scale (within some set boundaries) before and during retrofit installations. For example, one participant explained that retrofit projects (like broader renovations) almost always change to a degree during delivery, for a variety of reasons, including finding pre-existing but hidden issues (and associated cost increases) which require resolving in order to complete works, so finance agreements should be flexible in order to accommodate this. Also considered important was the ability to accommodate reasonable ancillary measures and decorative works, in order that a full package of measures is included in scope.

The most obvious intervention points for green home finance were described as moving-in for property purchases, and void periods for the rented sector. However, they were not necessarily seen as the most practical, given many stresses on homeowners at those times. Several interview participants were interested in other events (or 'trigger points'), including exploiting opportunities when non-energy home improvements (e.g. renovations) are undertaken, emergencies (e.g. boiler breakdown), and planned opportunities to change heating systems.

"*Let's say you wanted to get a heat pump because you are going to replace your boiler and you care about the environment. So you call a firm that comes to you and says, hey, it will cost you this much... You need to change your radiators as well because of the flow and so on... So eventually it will cost you £15,000 and* [the customer thinks] *OK, I can do that, but I don't have the funds right now… And then nothing really happens*." Finance sector (Successful GHFA applicant).

Local opportunities to aggregate measures through community schemes, again achieving cost effectiveness through scale, were highlighted as having the potential to find people 'in the right place' to take up measures. One participant described the necessity of finding the right householders at the right point to consider this, and also the propensity householders have to socialise and be influenced by others doing the same thing. In this context, opportunities could be geographically local to one another, or related in alternative ways that also supported project aggregation, such as potential retrofit schemes supported by an employer for their staff, or other community-based initiatives (e.g. community energy projects).

Challenges in developing green home finance products and services

As described above, broader retrofit market development challenges (as opposed to finance market challenges) were seen by most participants as the most substantive barrier to bringing UK homes to Net Zero. This section focuses explicitly on finance market challenges.

As described previously there was a dominant, broad view that there was plenty of activity and interest in the market, but that this had not yet evolved into substantive market progress, with many challenges remaining. Several participants, particularly those with existing experience of green home finance lending, recalled experiences of the Green Deal and the key lessons learnt: that overall cost effectiveness and simplicity for the customers were paramount to develop this market.

"I do get a little frustrated where people talk about new finance mechanisms and offers, and you get down to what the [underlying] interest rates are... And it's again at that of 7-8% plus. You think, this has been tried before and we know there is no point in going around this again." Third sector, (GHFA non-applicant).

Several participants noted that cumbersome internal systems, particularly for large traditional lenders, added complexity to customer journeys. It was also perceived that there was a lack of quality, open-source data[22] to help lenders and their customers understand the issue and take effective actions.

The challenge of how to identify effective and, where possible, scalable opportunities that could help improve the number and cost effectiveness of both retrofit projects and finance was noted by several participants:

"*The main challenge from my point of view is the cost of the financing… what we want to do is basically act as an aggregator of individual loans to create scale so that financial institutions are able to invest in an easier way into this very fragmented market*" Retrofit provider (successful GHFA applicant)

Accurate energy data to identify savings potential and to verify reductions was a very prevalent theme among participants. Lenders and energy experts commented on EPC data accuracy (and prevalence), questioning whether the Standard Assessment Procedure (SAP) and the Reduced Data SAP were fit for purpose. Others were exploring technology solutions, for example using smart meters, temperature data, and other sources to assess current performance and identify effective retrofit approaches to achieve improvements[23]. This is important for a number of reasons noted by participants, from information for customers, to the avoidance of greenwashing.

Several participants noted challenges associated with existing finance market structures, which did not currently adapt well to retrofit lending. For example, whilst mortgage finance was

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[22] Such as some EPC data, or smart meter data.

[23] For example, using products and innovations derived from innovations such as the SMETER programme. https://www.gov.uk/government/publications/smart-meter-enabled-thermal-efficiency-ratings-smeter-technologies-project-technical-evaluation

perceived to be by far the most cost-effective private sector source of finance (in terms of customer interest rates), it was noted that mainstream lenders tended to have relatively weak relationships with their customers, inhibiting their ability to engage around retrofit lending. Nor were they necessarily well placed to target customers at the right trigger points when retrofit works were more likely to be considered. The majority of mortgages are also arranged by intermediary brokers, and several participants believed that "[Mortgage] *brokers are no better than general public in terms of green knowledge*" (lender, successful GHFA applicant). Furthermore, it was described that current commission structures made it unattractive for brokers to get involved in small (£20-30,000) mortgage extensions to finance retrofit.

Unsecured personal loans were perceived to be a more convenient and flexible mechanism to fund green home retrofits, but much less cost-effective in terms of interest rates. Within the context of retrofit installations and personal loans, several participants identified that they also had potential risk liabilities for installation performance due to regulation such as the new Consumer Duty regulations[24], which they believed posed them a considerable risk.

"*But on top of that right now, the way the rules work, you can go after the lender, which if you buy a car and you get finance, if you got a problem with the car, you don't go after the lender*". Financial services (successful GHFA applicant)

Contract-hire and purchase mechanisms were discussed particularly within the context of heating system replacements, solar PV, and battery storage installations. One participant described that hire purchase schemes would make most sense being a permanent installation, but that "*if you turn it into that [a hire-purchase agreement, as opposed to contract-hire], then your tax rate increases by about 20%, so that's why you're seeing contract hire products instead*" (lender, non-applicant). These contract hire arrangements were described as incongruous and confusing to customers when supporting retrofit due to constraints around agreements on sale to the customer at the end of the hire arrangement, "*so you have to sell a product without any clear exit routes, which is difficult*" (lender, non-applicant).

The finance sector is highly regulated, and regulatory bodies were referred to by many participants in relation to portfolio and capital management, sales, and product development. Many finance participants described that there was clear desire and opportunities to innovate with finance mechanisms to make them more attractive and appropriate for green home finance applications, but that the regulatory system in place was very challenging:

"*working with the regulator, there is always the very long cycle if you want to be innovative. It just takes 6 to 8 months to do any separate individual thing. And if you have one or two of those things in sequence, then it just takes a long time… there's nothing at the FCA that is specifically supportive of companies trying to finance green initiatives*" Lender (non-applicant)

In addition, other regulation needed to work with the finance sector to ensure incentives were consistent and support lenders to innovate. Examples given included, in the private rented

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[24] From the FCA July 2023, see https://www.fca.org.uk/news/news-stories/consumer-duty-higher-standards-financial-services

sector, the tax treatment of mortgage interest and the rental reform bill, which were perceived to be working against green home finance instruments.

3.3 Development and support for future green home finance and retrofit

Key Findings:

Respondents felt that significant support from Government is needed to generate demand for green finance products.

The UK retrofit supply chain was deemed insufficient by participants and is far from operating at the levels of capacity and skills required.

Suggestions around supporting green financing included getting key players such as capital markets, intermediaries, and suppliers of energy data and expertise aligned with the UK's retrofit ambitions.

Supporting factors for the retrofit market

In the short term, there was perceived to be a significant need to facilitate the 'joining up' of those market actors who had previously not worked together in order to facilitate new partnerships and innovations. Many participants perceived that substantial changes were needed across retrofit and financial markets, and that partnership development work at an industry level was needed to both ensure that market and policy development activities acted in a complementary and fair manner, and avoided potential unintended consequences.

Government was perceived to be one of the most important stakeholders driving the Net Zero agenda, and so a clear facilitating role was perceived here. Two aspects were perceived as most important within this context. Firstly, in forming a more holistic policy approach to retrofit delivery, taking account of market complexities and interconnected issues within and outside of retrofit policy, to ensure that incentives pull together rather than work against each other. Key issues that were noted included both government and sector regulations, such as the private rented sector, consumer credit (in particular debtor/creditor/supplier agreements relevant to the installation and financing of retrofit measures), the Prudential Regulation Authority (PRA), the FCA, and the Bank of England. Secondly, almost all participants felt that Government should set the direction of travel very clearly with clear deadlines and detail along the route. Local and regional government actors showed very clear motivation that they would proactively drive retrofit in their areas if given sufficient funding.

As described in the sections above, substantive and long-term action was perceived to be necessary in facilitating market demand for green home finance. The most prevalent issue was to raise awareness amongst homeowners. However, addressing trust was emphasised, in order to provide guidance to householders to demystify retrofit, its costs and benefits, and how to take action relatable to their personal circumstances. A clear role was perceived for market actors, both public and private, and also for Government, particularly in supporting advice provision and trust. Several participants discussed the concept of a digital 'home passport', informed by EPC and also new smart meter and other data-based tools[25], to help inform consumers and the finance and retrofit markets to effectively identify and cost-appropriate retrofit measures. A few participants also considered re-badging retrofit to make it more broadly appealing to householders, and link to various other benefits (e.g. improved thermal comfort and internal environments, social value and wellbeing) associated with it:

"*Plenty of money is spent on home improvements already, but energy efficiency doesn't seem to fall into this – could it be rebadged to be more appealing?*" Financial sector (successful GHFA applicant).

On the supply side, most participants described that the retrofit supply chain was far from operating at the levels of capacity and skills required. Interestingly, this was often blamed on weak demand signals, or competing demand for non-energy home improvements, and that this had been exacerbated by recent market crises, as well as 'stop-start' incentive programmes, which had had a bruising effect. Several participants perceived that those in the broader building trade were approaching the retrofit agenda with considerable caution, and would only invest in training and capacity building when there were demonstrable and long-term supportive conditions put in place. Some suggestions to help unlock supply chain constraints included development of standardised contracts to prevent unhelpful multi-layered sub-contracting, or to provide solutions where complex stakeholder relationships were involved like in community energy projects. Another suggestion included developing supported apprenticeship scheme to develop specific retrofit skills. One of the installers interviewed provided a counter argument, noting that when demand was created by a government scheme in Scotland, the retrofit capacity rose to meet it.

Several participants described that it would be helpful to have improved, clearer, and defensible standards which could support "investment grade" building ratings, with clear, robust and desirable standards for what a "green" home is. Existing examples of approaches to improve standards, such as EPCs and Passivhaus, were perceived as not appropriate or fit for purpose for large scale retrofitting of existing buildings. Checks and balances were also deemed necessary to avoid unverified funds being given to customers to spend on "*holidays and hot tubs*" (retrofit lender, GHFA non-applicant). Both a robust set of standards and ways of checking funds have been spent appropriate would help securitisation[26] and the "greenium", previously described as being crucial to influencing retrofit finance take up and avoiding greenwashing.

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[25] For example, such as innovations being developed as part of and outside of the SMETER programme, which was mentioned by some participants. https://www.gov.uk/government/publications/smart-meter-enabled-thermal-efficiency-ratings-smeter-technologies-project-technical-evaluation . The Green Finance Institute (GFI) has also proposed Building Renovation Passports

[26] Mortgages may be pooled to form a tradeable security, which can be sold to investors (for example see https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/1994/asset-backed-securitisation-in-the-uk.PDF, or https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1000693/Securitisation_Regulation_Call_for_Evidence_June_2021.pdf)

Further to the above, some participants expressed a desire for greater focus and support to inform the development of effective packages of retrofit measures that can be aggregated, which could be delivered and financed cost effectively. Some participants felt that whilst lessons had been learned from previous energy efficiency programmes[27], it was not clear what measures (or combinations of measures[28]) targeted at which tenures and housing types were more attractive and deliverable from a retrofit finance perspective. These would have different emphases and priorities dependent on different tenures or targeted householder types (e.g. more or less affluent, street by street actions, community energy, targeting blocks of flats etc.), and that the sharing of lessons and best practice would be important as the market developed in future.

Finance mechanisms and the finance sector

As described above, many perceived that new finance products would follow retrofit demand. However, a large number of suggestions were also made around supporting financing that participants felt could be considered.

Targeting less engaged parties was considered important. Potentially influential intermediaries were one group. As described earlier, mortgage brokers and the real estate industry were both perceived as currently less engaged, but key actors in supporting green home finance take up and broader enactment of the "greenium". The green premium was broadly perceived to have real market potential, but without the active involvement of these actors, it would likely remain as 'just a nice concept'. Another group are less engaged owners. For instance, some participants felt that now was a good opportunity to focus on the private rented sector, which has been viewed as a laggard in the energy space. Opportunities now exist to lever larger portfolio landlords, who should be engaged to act by current policies, and where there are pragmatic opportunities, such as using void periods between tenancies to deliver retrofit measures.

Supporting and enabling faster innovation in financial services was considered key. In a highly regulated sector, the facilitation of this by bodies such as the FCA are vital. Some participants felt that government innovation schemes, such as the GHFA and GHFIF, could be developed at even greater scale. Encouraging other parts of the market to innovate more creatively would also be complementary, for example through further innovation of 'heat as a service' type schemes. As one participant noted, "*interest free credit" alone is not enough of an 'answer' for technology companies"* (energy supplier, successful GHFA applicant).

Supporting the customer journey better towards green financing was considered to be needed. For instance, modernising lending processes, some of which were perceived to be out of date and had unnecessary friction embedded into them:

[27] Such as energy efficiency and renewables incentives like the Energy Company Obligation, Feed-in-Tariff and Renewable Heat Incentive.
[28] Working in parallel or in series, acknowledging that many would approach retrofit in increments rather than all in one go.

"*It's not digital… There's people underwriting this at the back-end*". Lender (GHFA non-applicant).

Some participants suggested the whole customer relationship needed reconstructing. For instance, developing longer-term loans or relationships would "*encourage lenders to take a longer-term interest in improving the portfolio rather than current approach of 'cycling' through customers*", which in turn increases the danger of creating "*mortgage prisoners*" (lender, GHFA successful applicant).

Participants felt that a variety of financial mechanisms were needed. Many participants expressed the need for further specific incentive schemes to help drive market demand. However, in the context of developing a scalable finance market, there were mixed views on the long-term role of grants, being described as "*uncomfortable bedfellows*", requiring a lot of effort and administrative burden to bring them together. Other solutions to incentivise take up were considered more attractive, such as variable council tax, preferential stamp duty rates for green properties, or subsidising interest rates. Further suggestions were aimed at the business case for finance providers, such as providing Government-backed guarantees for the marginal credit risk on additional borrowing for green home finance.

Financing mechanisms that worked in pools or funds were also suggested. Suggestions included developing specific funds:

"*…that invest in energy efficiency retrofits that could be, a huge enabler because if you do it correctly…. you use that sort of seed capital to show that you know these products can be actually viable.*" Retrofit provider (successful GHFA applicant).

Developing recycling funds, managed by local, impartial or mission-driven bodies such as local authorities or community interest companies (CICs) were also suggested, with some participants citing successful precedents. A final suggestion drew on communal building management systems, such as those used for repairs and maintenance, to fund installations.

3.4 Experiences of the GHFA

Key Findings:

The GHFA was perceived to address the barriers of collaboration between actors as it facilitated new connections and strengthened existing relationships, growing the ecosystem and enabling green home finance product innovation.

Participants suggested that without the GHFA the development of their products would have either happened slower, less well or not at all.

Participants involved in this research had all interacted with the GHFA, either through applying to it, or engaging in activities associated with the programme. This final section describes their experiences engaging with the GHFA, including how they became aware of it, motivations to apply (or not) and, for applicants, their experiences of applying.

The majority of participants said they were (or knew others) on the Department's stakeholder list and were made aware of GHFA either directly or indirectly via the Department's engagement with these stakeholders. A few also mentioned seeing information shared on LinkedIn.

One participant mentioned that with central government programmes like this, it was less clear as to where to look to gather knowledge on these opportunities. Other funding sources, such as Innovate UK were described as having specific and better-known information sharing platforms and processes available for those looking to get funding for this type of activity.

Motivations to apply

Those stakeholders who applied did so primarily as it was seen as a helpful funding opportunity, which could help them do something more innovative, risky, or challenging than they otherwise would be able to do. Other reasons included the perceived value of collaborating or "*putting heads together across the industry*" (lender, successful GHFA applicant), given the complexities of the finance and retrofit sectors. Particularly for smaller applicants, having funding was perceived to make the organisation more attractive for investment by others, and receiving funding from Government gave credibility in the market.

"I think more importantly, in the long run… we believe that our small organization, this gives us certain credibility amongst other players and that could be transformative for us" (Lender - successful GHFA applicant)

Application experience

Some participants who were well versed in applying for innovation grant funding described that GHFA application felt "*somewhat burdensome for a small amount of money, but not ridiculous*" (Data provider - successful GHFA applicant).

"*I always find it really interesting how there is almost no relationship between the amount of effort it takes to write a bid to what you actually get at the end of it*" (Local authority - successful GHFA applicant).

Several applicants from larger organisations had needed more time within the process to complete internal due diligence and senior approvals. One applicant, who was less experienced with government innovation funding programmes, noted that some of the application questions were helpful for them to consider as part of the application process.

One interview participant, representing a stakeholder from the finance sector who attended an information event but did not apply to the GHFA, and who had more experience of private sector financing as opposed to public grants for innovation, was dissatisfied with the perceived lack of flexibility over what activities were eligible for funding. Furthermore, a few participants felt that the scheme was set up in a way that discouraged smaller organisations from applying, because of the time and resources required to make an application. However, the networking elements undertaken during the launch of the GHFA programme were described by several participants as being very helpful to identify and secure partners. Several new partnerships were described as developing from this networking, and other existing networks had further evolved because of it.

"*So the fact that they promoted this platform to partners, I think it's been very useful for me*" (Retrofit provider - successful GHFA applicant).

Benefits brought by partners

GHFA projects were perceived to be helpful in bringing together multidisciplinary actors to combine skills, particularly between the energy demand and finance sectors as well as legal, technical, financial, and regulatory expertise to help make products workable in the market. As described above, some partnerships were seen as important to help mitigate risk, and others provided access to customers (e.g. via existing retrofit actors and their supply chains), which would enable the development and testing of solutions.

Importance of the GHFA to green home finance development

Interviewees provided a range of views on the importance of the GHFA to green home finance market development. Some perceived it would have happened anyway but more slowly, or less well, whilst others perceived that that it would not have happened, because internal resources are always prioritised for 'core' activities, which for some actors, such as traditional lenders, does not include green finance product development. One participant commented that central government innovation programmes were "*a bit boom and bust*" (Lender - successful GHFA applicant), as opposed to other sources, which have a broader umbrella of support that organisations can engage with throughout and plan further development. Several participants highlighted a desire to have more networking and opportunities to introduce actors to one another through future opportunities within and outside of the GHFA programme.

4 Conclusion

It is important to reiterate that the findings of the report are qualitative in nature, and represent the views and experiences of interview participants at the particular point in time that the research was undertaken. In addition, these views are not necessarily representative of the total population of organisations active in the green home finance market. As described in this report, the market for green home finance comprises a broad diversity of actors both interested and operating in the market, and it is possible that not all types of organisation were represented within the research sample.

The interviews conducted pointed to significant interest in green home finance, and its potential to grow into a long-term market. Participants were eager to discuss the issue, and many indicated a fit between the need to decarbonise homes and their organisational strategies and product development plans. Many participants felt an urgency around low carbon goals for the housing stock, although substantial action had not always been taken. This interest occurred across a wide variety of actors, extending beyond mainstream lenders and low carbon technology installers. This variety of interested actors has been termed the green home finance 'ecosystem' (the ecosystem) in this report, reflecting the diversity of organisations and their interactions.

However, a key finding was that the participants within the ecosystem did not currently connect effectively enough to deliver green home finance products at the significant scale required to meet the UK's Net Zero goals. Participants attributed this to a number of reasons. Some barriers to action were organisational, and included missing or misaligned relationships between parties, competing internal priorities, and lack of internal skills or knowledge relating to low carbon or energy efficient homes.

Some organisations were very optimistic about the business case for green home finance development, seeing an untapped and significant opportunity. Others expressed scepticism around the business case for green home finance product development. The issue of scale was critical for both and depended on the participant's views on whether and how customers could be reached at significant volume.

An important finding was that customers are also very diverse. Homeowner types referred to extended beyond the expected differences, such as that between landlords and owner-occupiers, to encompass further distinctions between homeowner age, or location. These sub-sets affected the relative attractiveness and suitability of different green home finance products. Varying views on customer interest and drivers were also expressed. Many participants pointed to significant remaining barriers, including upfront cost, trust in low carbon technologies and awareness. However, some participants were also keen to note recent shifts, such as rising interest in solar (PV) panels.

The interviews revealed a number of innovative solutions under development, and further suggestions to catalyse the green home finance market. Participants suggested that a variety of mechanisms would be required to achieve decarbonisation of homes, with a strong role for regulation at national and local levels to underpin the transformation. Participation in green home finance will be needed from the broader finance system, such as financial regulators and institutional investors, and the energy supply chain, including energy companies and data providers as well as installers. Interviews also pointed to a role for advisory bodies and coordination, such as from the third sector as well as government itself.

Overall, the interviews conducted suggested a green home finance market that could be poised on the edge of change, if the impetus to tip it into action at scale is present. The variety of organisations and customer types under the broad banner of green home finance suggests that policy and other incentives are complex and interconnected. Participants indicate that this provides a challenge, but also opportunity if interventions can catalyse reinforcing loops between the many actors and elements of the green home finance ecosystem.

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