Delivering Green Homes: Synthesis report from the Discovery Phase of the Green Home Finance Accelerator

April 2025

Contents

Glossary

Acronym	Meaning
DESNZ	Department for Energy Security and Net Zero
EaaS	Energy as a Service
EPC	Energy Performance Certificate
GHFA	Green Home Finance Accelerator
GHO	Green Home Optimiser
GLOCERS	Green Line of Credit Embedded in Retrofit Services
HaaS	Heat as a Service
HELOC	Home Equity Line of Credit
HEMS	Home Energy Management system
MCS	Microgeneration Certification Scheme
NZIP	Net Zero Innovation Portfolio
P4P	Pay for Performance
POST- FREE	Point of Sale Technology for Financing Retrofits and Energy Efficiency
ROI	Return on Investment

Executive Summary

Background and context

The Green Home Finance Accelerator (GHFA), part of the UK Government's Net Zero Innovation Portfolio (NZIP), is a £20m grant programme provided by the Department for Energy Security and Net Zero (DESNZ). Its overall aim is to accelerate activity in the green finance market, develop and test novel green home lending products, and incentivise domestic energy performance improvements across a range of consumer segments. This Synthesis Report relates to the Discovery Phase of the GHFA which funded 26[1] projects that ran from March to September 2023. As part of the terms of the grant, each project had to provide a Discovery Phase report at the end of their funding. This Synthesis Report provides an overview of the key findings across all Discovery Phase projects. The report is structured around four key thematic areas that emerged from the Discovery Phase reports:

- **Building successful partnerships** e.g. the importance of projects building strong strategic and operational working relationships with financial institutions and other relevant stakeholders;
- **Understanding the retrofit customer** e.g. the need for evidence-based insight on the characteristics, incentives and behaviours of different groups of homeowners;
- **Developing tailored financial products** e.g. the drive for a wide range of new and innovative financial products and services, including 'green loans' and 'green mortgages'; and
- **Working effectively with installers** e.g. the importance of understanding the challenges faced by retrofit installers and how they can be overcome.

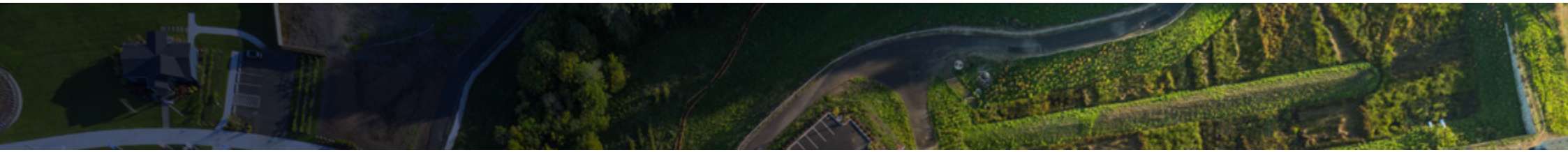
A summary of the key findings related to each of these thematic areas is as follows:

Building successful partnerships

All Discovery Phase projects had a strong focus on establishing and building partnerships with a wide range of stakeholders e.g. financial services firms, energy experts, retrofit experts. The nature of these partnerships varied, depending on the specific product or service being developed. Lessons learned from the Discovery Phase include:

- **Build consumer awareness and trust** - e.g. use effective partnership relationships to support with the provision of clear, accessible and personalised information for customers; and build trust with customers through effective signposting to credible resources and verification bodies such as Trustmark and MCS;
- **Address operational and cultural disparities between partners** - e.g. work together to align organisational culture between stakeholders in the partnership, through simple and transparent ways of working agreements; and
- **Close financial and technical knowledge gaps** - e.g. provide knowledge sharing training for partner organisations, and use a range of methods to close knowledge gaps, including bespoke digital tracking tools and one-stop-shops.

1 Please note that although the Discovery Phase funded 26 projects, one of the projects did not complete, and so did not produce its end of project report. The evidence for this Synthesis Report, therefore, is based mainly on 25 (not 26) end of project reports. It is also important to note that all research conducted during the Discovery Phase was carried out solely by the grantees, with no direct involvement from DESNZ in either the research processes or the confirmation of the findings.



Understanding the retrofit customer

Discovery Phase projects identified four main customer groups, and confirmed through their research that different sets of engagement tools and techniques needed to be deployed in relation to each group. Lessons learned from the Discovery Phase, which have implications for future projects included:

- **Empower 'able-to-pay homeowners'** - this group is likely to be engaged positively by the use of energy saving verification measures and performance guarantees; it is also likely to respond well to the provision of 'integrated' solutions that include information about financing, installation and monitoring in one package;
- **Work with 'profit-focused landlords'** - this group responded well to the use of new, tailored financing arrangements, e.g. ones that used rental income to service retrofit loans, and others that leveraged property portfolio equity to support future retrofit investment;
- **Support 'financially constrained homeowners'** - this group was likely to respond well to the use of real-time 'compare the market' dashboards, as well as financial arrangements that helped to tackle the up-front costs that often discouraged this group from taking the first step in their retrofit journey; and
- **Persuade 'sceptical homeowners'** - this group welcomed solutions that clearly and credibly personalised their potential energy savings, particularly through the use of digital platforms that provided personalised, independent data analysis and modelling.

Developing tailored financial products

Many Discovery Phase projects focused on developing new and innovative green financial products, designed to encourage the adoption of energy-efficient and low-carbon home technologies. In this regard, the main lessons learned was as follows:

- **Personalise information provision to close knowledge gaps and reduce complexity** - e.g. using data and modelling to illustrate clearly home value improvements post-retrofit, and incorporating regular, easily accessible, personalised correspondence, updates and advice at all points along the customer journey.

Working effectively with installers

Many Discovery Phase projects were seeking to build future relationships with installers, on the basis that understanding the challenges faced by the supply chain is key to overcoming them. The research suggested strongly that a range of measures can be implemented to do this including:

- **Develop installer and supplier capacity** - e.g. using training and certification programmes to boost installer engagement and expand the qualified workforce, and using more tailored financing arrangements (e.g. carbon credit-backed financing, and staggering payments to improve installers' cash flow) to make installer participation in retrofit more viable; and
- **Use technology effectively to address data gaps** - e.g. through incorporating smart technologies - such as smart meters, sensor data and energy performance prediction technology - into the installation process, so the performance of the retrofit can be monitored robustly.

In conclusion, the overall purpose of the GHFA Discovery Phase was to explore how to best develop a range of new financial products and services, with a view of incentivising new domestic energy performance improvements across different customer segments. The experience of the 26 Discovery Phase grantees, as set out in this Synthesis Report, provides rich qualitative insights into the key challenges and issues they faced , and what can be done to tackle them. It is hoped that the information and recommendations presented here will be useful for future project partners, policy officials and other stakeholders in the UK as they continue to work together to drive forward the Government's Net Zero agenda.

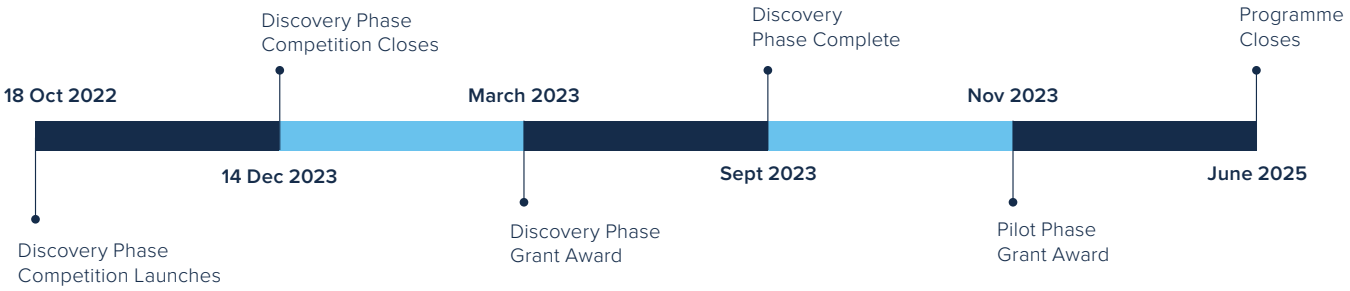
Introduction

Background to the Green Home Finance Accelerator (GHFA)

The Green Home Finance Accelerator (GHFA), part of the UK Government's Net Zero Innovation Portfolio (NZIP), is a £20m grant programme funded by the Department for Energy Security and Net Zero (DESNZ). Its overall aim is to accelerate activity in the green finance market and develop and test novel financing products that work to incentivise domestic energy performance improvements across a range of customer segments. The programme began in October 2022 and consists of two distinct phases **(see Figure 1):**

- **Phase 1: Discovery (Oct '22 - Sept '23)** - this phase provided small grants to 26 projects that undertook research on how best to develop new finance products and services; and
- **Phase 2: Pilot (Sept '23 - June '25[2])** - this phase provided higher value grants to 13 of the 26 Phase 1 projects to create and test their products and services in the market.

Figure 1: Timing for Phases 1 and 2 of the GHFA programme



The overall objectives of the GHFA were as follows:

- Pilot a range of innovative green finance products that enable home energy efficiency/low carbon heating/ micro-generation improvements;
- Develop capability among finance providers in the design, development, and commercialisation of green finance products;
- Develop partnerships between lenders, investors and other stakeholders, e.g. in relation to home retrofit and property value supply chains;
- Understand and reduce consumer barriers to help finance domestic low carbon heating, energy efficiency, and micro-generation measures; and
- Establish an evidence base to enable effective design and development of green finance propositions and inform future policy development.

2 Pilot Phase projects were originally due to complete by end of February 2025. However, the Department offered all projects the opportunity to request extensions until end of June 2025 in order to complete piloting and reporting activities.

Overview of the GHFA Discovery Phase

This report relates specifically to the Discovery Phase (Phase 1) of GHFA, during which DESNZ awarded up to £4.2m in total grant funding to 26 projects across England, Scotland and Wales. GHFA Discovery Phase grants were relatively small, with the average grant size being £160k. Further information on the profile of grants across the portfolio is provided in Table 1 below.

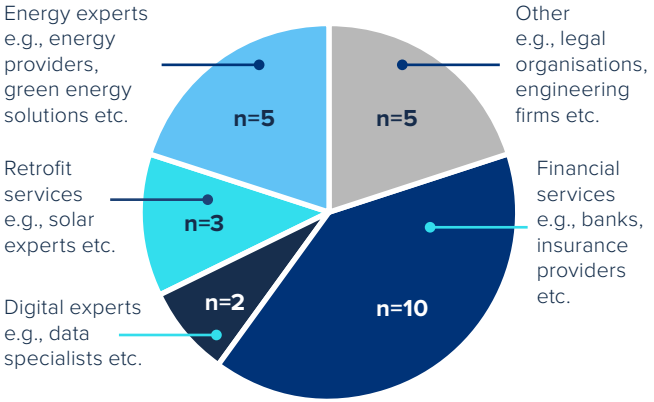
Table 1: Overview of GHFA grant funding	
Total amount of GHFA grant funding	**£4,168,227.42**
Maximum project grant	£200,000.00
Minimum project grant	£56,344.54
Average grant size (mean)	£160,354.90

These grants supported Discovery Phase organisations to undertake research aimed at acquiring the knowledge and skills required to develop new, innovative financial products and services. The funding also produced evidence to inform pilot proposals that were then developed as part of 'Phase 2: Pilot' (Sept '23 - June '25). In total 13 out of the 26 projects progressed to Phase 2, and information on them can be accessed **Green Home Finance Accelerator: Pilot Phase projects**.

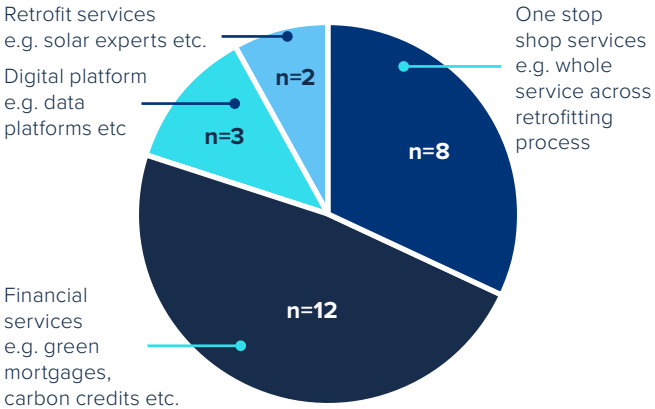
Figure 2 provides an overview of the types of organisations involved in leading Discovery Phase projects and the specific types of projects they were involved in. Further information on each of the Discovery Phase projects is provided in the Annex to this report.

Figure 2: Overview of GHFA organisations and projects

GHFA Organisations



GHFA Projects



Purpose and structure of this report

The main sections of this Synthesis Report are as follows:

- **Building successful partnerships** - this section explores the experiences of Discovery Phase projects in building partnerships, highlighting the nature and scope of these partnership arrangements, as well as some of the challenges encountered and how they were overcome;
- **Understanding the retrofit customer** - this section examines the experiences of projects in identifying and engaging various customer groups, and how these experiences informed their approach for providing relevant information and tailoring marketing to effectively reach each group;
- **Delivering tailored financial products** - this section explores the financial products and services developed during the Discovery Phase, customer preferences towards these, and the strategies projects used to increase customer awareness and engagement; and
- **Working effectively with installers** - this section looks at lessons learned from the pre-installation process and explores the common key challenges when working with installers, with a particular focus on installation verification.

At the end of each of these sections we have included a short "Lessons learned" sub-section that sets out key lessons learned from the experiences of the Discovery Phase projects. We have also included an Annex 'Overview of GHFA Discovery Phase projects' which provides summary information on each individual project and signposts readers on where to find additional information.

Building successful partnerships

Overview of Discovery Phase partnerships

Discovery Phase projects were all involved in building partnership relationships with a diverse range of stakeholders, including financial services providers, retrofit experts and local government organisations
(see Figure 3 below).

Figure 3: Partnerships created by GHFA grantees - overview and rationale underpinning the arrangements

Financial services

6 projects built/planned to build these relationships to support with:

- Identifying target households for retrofit initiatives.
- Strengthening public trust and adoption.
- Policy support and ensure regulatory alignment.

Retrofit experts

9 projects built/planned to build these relationships to support with:

- High quality installations verification and post-installation performance tracking.
- Building homeowner trust.
- Expanding market adoption by enhancing workforce capacity through training.

Installers

8 projects built/planned to build these relationships to support with:

- Quality and compliance of retrofits.
- Addressing supply chain challenges and workforce gaps.
- Enhancing consumer confidence and engagement.

Energy experts

9 projects built/planned to build these relationships to support with:

- Accurate and reliable energy efficiency assessments.
- Validating and verifying retrofit performance.
- Large-scale retrofit adoption.

Councils and governmental organisations

6 projects built/planned to build these relationships to support with:

- Identifying target households for retrofit initiatives.
- Strengthening public trust and adoption.
- Policy support and ensure regulatory alignment.

Quality assurance providers

5 projects built/planned to build these relationships to support with:

- Reducing risk for homeowners and financial backers.
- Improving consumer trust and confidence.
- Compliance with industry and regulatory standards.

Projects prioritised different relationships, depending on the products and services they were exploring. We have provided below two case study examples of new partnerships that were built during the Discovery Phase and how these were expected to support the projects' ambitions.

Case studies

Working in partnership with financial institutions to tackle the barriers facing hard-to-reach residents (Living Places)

While developing a Software-as-a-Service (SaaS) data platform, Living Places built relationships with lenders West Brom Building Society, Nationwide, Lloyds and Barclays which deepened their understanding of the energy efficiency market. The relationships were initiated through conducting workshops and actively listening to their sustainability goals and needs. Living Places expects these relationships will support retrofit delivery as the feedback from the financial providers will allow Living Places to develop its product in a way that is more attractive to lenders.

View more details about the Living Places project here

Partnering with data and analytics companies to 'sell' retrofit to residents (Snugg)

Snugg engaged Bricks and Logic Limited, a property and data analytics company, to provide access to an algorithm to estimate the impact of energy efficiency on house prices. Snugg was then able to take a sample of properties, estimate the value impact of efficiency improvements, and test with users whether this estimate might encourage them to take action. This was tested using a large volume of properties through the Discovery Phase and is expected to be an integral solution for future delivery.

View more details of the Snugg project here

Barriers to building successful partnerships

Several Discovery Phase projects indicated that they experienced or expected to encounter a number of key barriers when attempting to establish and nurture external partnerships **(see Figure 4 below).**

Figure 4: Barriers to building successful partnerships

Operational and cultural disparities

- **Differing operational** approaches of government agencies and private sectors.
- **Contrasting ideals** around verification process for Financial institutions and retrofitters.
- **Misaligned expectations** in relation to the retrofit process from homeowners and installers.

Financial and technical knowledge gaps

- **Lenders unwilling** to or hesitant about promoting green loans.
- **Complexity of grant processes** for homeowners.
- **Stakeholder collaboration** can at times slow product development.

Customer awareness and trust

- **Limited consumer awareness** and trust in retrofit financing that limits adoption rates.
- **Concerns about retrofit effectiveness** that discourage partnership development.
- **Scepticism towards new retrofit business models** due to from a lack of installer knowledge, undermining consumer awareness and trust.

The Discovery Phase projects addressed these barriers in a range of different ways, including:

- Building awareness and trust amongst customers;
- Addressing the operational and cultural differences across partner organisations; and
- Using formal training and informal knowledge sharing to close financial and technical knowledge gaps (please refer to the following "Lessons learned" section for further information).

Overview of lessons learned

The evidence suggests that, to drive successful partnership arrangements, future projects should carefully consider three key areas, along with specific actions for each **(see below)**.

Build consumer awareness and trust

Provide clear, personalised information through effective partnerships

Snugg found that consumer confidence in retrofit technology increased from 26% to 80% through personalised communication approaches. Other projects, including City Science (Legal and Commercial Structuring of Heat as a Service) and Virgin Money, provide evidence consistent with this.

Build trust through partnerships and signposting

Signposting to verified and recognised resources and partnership organisations enables projects to cost effectively supply reliable information to consumers. Please review the section on Signposting below. A number of projects used signposting to reference credible resources and help the consumer understand verification bodies. For more information, please see the reports from People Powered Retrofit, who focus on training staff as retrofit advocates so that they can advise and signpost clients to further information about retrofit measures, and Scroll's POST-FREE project Finance, who use signposting to simplify complex topics.

Create unified verification frameworks throughout the partnership

Many of the Discovery Phase projects set out clear verification standards that they intended to use throughout their projects. The ELPS Energy project is seeking to develop an extensive high-fidelity verification database for pre and post-installation in order to de-risk future issues related to the retrofit work. Scroll's GLOCERS project intends to allow homeowners to access funding only through Tustmark and MCS-accredited installers.

Address operational and cultural disparities between partners

Bridge cultural gaps through aligning stakeholder goals and expectations

The Phoenix Group report highlights the benefits of prioritising cultural alignment with advisors and installers to foster long-term working relationships. Leeds City Council report shows that by establishing, at the outset, a set of shared goals and facilitating regular cross-sector meetings to align perspectives, they enhance collaboration and improve decision-making efficiency across the private and public sector.

Close financial and technical knowledge gaps

Sharing knowledge and offering training within partnerships

Sharing knowledge within partnerships fosters a better informed, and more collaborative team. The Perenna Bank report highlights this, showing that educating both the mortgage team and retrofit experts on each other's roles improved their understanding and efficiency. Additionally, People Powered Retrofit demonstrates this through holding joint workshops between the Credit Union staff and frontline retrofit delivery staff, to help Credit Union staff understand retrofit financing and educate retrofit providers on lending compliance.

Partnering with digital providers to close knowledge gaps

Many of the projects leveraged digital tools to enable knowledge sharing. For example, Leeds City Council is exploring partnering with digital providers to deliver a hyper-local, data-driven One-Stop Shop (OSS) that simplifies retrofit journeys with personalised advice, smart tariff modelling, and innovative finance options like Property Linked Finance. By using digital tools, behavioural insights, and targeted local engagement, they aim to close knowledge gaps, build trust, and increase homeowner uptake of energy-saving improvements.

Understanding the retrofit customer

Overview of the main customer groups

Across the 26 projects, there was a focus on engaging a wide range of customers. Table 2 summarises the four main types, or groups of customers that were identified.

Table 2: Overview of the main Discovery Phase customer groups

Able-to-pay homeowners	Profit-focused landlords	Financially constrained homeowners	Sceptical homeowners
Financially capable, but lack the time to navigate complex home retrofit processes. They seek a streamlined, hassle-free, personalised service with clear guidance and straightforward financing options that highlight tangible benefits.	Consist of both accidental and professional landlords. Their primary incentive is regulatory compliance and they focus on maximising returns through quick, cost-efficient solutions that minimise tenant disruption.	Interested in home retrofit but limited by financial constraints. They often require education and financing options, payback periods and potential savings from energy-efficient measures before committing as they fear long-term financial commitments.	Homeowners who see no urgent need for home upgrades and avoid unnecessary expenses. They are sceptical about energy savings and need clear financial benefits, along with the simplification of decision-making, to encourage their engagement.

Engaging different customer groups

Through research and development Discovery Phase projects investigated the most effective way to tailor their approach for engaging effectively with different customer groups **(see Table 3 below).**

Table 3: Strategies used to engage different customer groups

Customer group	Strategies for engaging customer groups	Example projects
Able-to-pay homeowners	• **Use one-stop-shops and digital platforms** to simplify household decision making and improve engagement in retrofit • **Provide bundled financing options and lists of pre-vetted providers** to support initiation of retrofit processes • **Offer easy access to energy savings verification and performance guarantees** in order to ease underpinning concerns	• Parity Projects • Snugg • Cybermoor
Profit-focused landlords	• **Provide individualised, landlord-specific funding schemes** in order to help lower per-property costs • **Offer portfolio-wide financing solutions** to enable cost effective batch retrofits • **Support EPC-focused incentives** for compliance	• Landslide • City Science (Buy-To-Let Decarbonisation System) • Energy Saving Trust
Financially constrained homeowners	• **Provide new blended grant-loan financial packages** for retrofit to ease financial burden on households, particularly in the short-term • **Offer deferred payment plans** in which current costs are aligned more clearly to future energy savings	• Scroll (GLOCERS Project) • City Science (Heat as a Service)
Sceptical homeowners	• **Re-balance motivation and incentives** through smart use of cashback offers and grants • **Provide clear information on financial benefits and payback from retrofit**, particularly through digital platforms and tech-enabled simulations	• People Powered Retrofit • Chameleon

Please find further details for the 'Example projects' projects on the **Green Home Finance Accelerator: Discovery Phase projects GOV.UK webpage**.

Case studies

Personalising the retrofit experience using digital platforms

Kamma

The Green Homes Optimiser (GHO) project will look to create a data-driven engine for an end-to-end retrofit platform, connecting lenders, customers, and retrofitters. GHO provides homeowners with tailored retrofit recommendations based on their specific property characteristics, energy performance goals and budgets. They expect this to allow them to effectively engage with diverse consumer groups and cater to their specific needs.

View more details about the Kamma project here

Providing information and advice to homeowners

Discovery Phase projects found that signposting was important because it helped guide consumers to relevant information and resources relating to installation options, available grants, and finance solutions, enabling them to make well-informed decisions. However, the experience of the Discovery Phase was that signposting also had its limitations, including the potential for information overload, insufficient clarity in the information provided, and the inability to address complex individual needs in a personalised manner. Some of the main signposting destinations are shown in Figure 5 below.

Figure 5: Websites commonly signposted to by the Discovery Phase projects

GOV.UK

The website provides the customer information on making homes more energy-efficient by implementing retrofit solutions. It is a reputable source of information the unbiasedly outlines the benefits and processes of installing these technologies to reduce energy consumption. Users can assess which energy-saving actions are suitable for their homes through the Home Energy Assessment tool.

Energy Saving Trust

The Energy Saving Trust offers expert advice and resources to help homeowners improve energy efficiency, reduce bills, and lower their carbon footprint. It provides practical solutions for home retrofits and supports businesses and communities in advancing energy-saving initiatives.

Trustmark and MCS

Trustmark helps homeowners find reputable, vetted tradespeople for energy-efficient improvements, ensuring high-quality work and customer service. MCS certification provides assurance that renewable technology installers meet industry standards, offering peace of mind and eligibility for government schemes. Both certifications help ensure reliable, professional retrofit projects.

Financial Information

Consumers are guided toward financial information, such as grants and loans, to help them navigate the application process. This can enhance trust in the service and increase confidence in financing home improvements. This also enables customers to make independent financial decisions, with the caveat that signposting to unsecured finance products requires Credit Broker permission.

Case studies

Signposting effectively to build customer trust and transparency

People Powered Retrofit Limited

People Powered Retrofit seek to use effective signposting by directing homeowners to (a) Credit Unions for ethical retrofit financing and (b) trusted energy efficiency advisory services for technical support. This dual approach looks to bridge financial and technical knowledge gaps, ensuring customers feel confident in both their funding choices and retrofit decisions.

View more details about the People Powered Retrofit Limited project here

Scroll Finance Limited

Scroll's POST-FREE project looks to use effective signposting through its Green Finance Hub, directing homeowners to government grants and trusted advisory sources like the Energy Savings Trust. It also aims to connect customers with accredited installers and financial advisors, ensuring they understand their financing options and have access to quality-assured retrofit services. This aims to streamline the customer journey, and reduce financial uncertainty, making retrofits more accessible and encouraging wider adoption.

View more details about the Scroll Finance Limited project here

The alternative to signposting, explored by some Discovery Phase projects, is to provide all the necessary information within a single resource **(see Case study below).**

Designing a bespoke tool as an alternative to signposting

Ashman Bank Limited

Ashman created their own bespoke tool, rather than signposting to the GOV.UK energy advice tool. Research conducted by Ashman showed that landlords require personalised assessment of their property to determine what is needed to meet the retrofitting requirements. This can only be done with the development of a bespoke tool and advice. Ashman found that landlords want and need the actual personalised support and guidance knowing that a property visit has taken place.

View more details about the Ashman Bank Limited project here

Digital platforms were prominent among the Discovery Phase projects, with 8 projects focusing on becoming one-stop-shop platforms to provide customer advice on the retrofit process. The evidence suggested that these digital platforms were attractive to a number of consumer groups as they could create personalised recommendations based on a number of inputs, including budget. Several projects saw this kind of solution as a gap in the market **(see case study below).**

Using a digital front door to build customer engagement

Kamma

Kamma's research found that many homeowners struggle to navigate retrofit options and establish which is most appropriate for themselves. To address this Kamma is developing an interactive digital platform that allows homeowners to input their property details and receive personalised retrofit recommendations. This will allow customers to explore different upgrade options, based on their specific property characteristics, energy performance goals, and budget. The platform allows the homeowners to track and benchmark their progress over time, this visualisation seeks to encourage continuous action and motivation for the process. This simplified the decision-making process and the personalised data will make retrofitting more attractive and accessible.

View more details about the Kamma project here

Overview of lessons learned

The evidence strongly suggests that future projects should carefully consider the four key customer groups identified in the Discovery Phase, along with specific actions for each, to drive effective customer engagement **(see below).**

Empower 'able-to-pay homeowners'

Use energy saving verification and performance guarantees

Energy saving verification and performance guarantees can play an important role in reassuring homeowners in the retrofitting process. The ELPS Energy project, for example, set out to create a model that computes energy consumption and predicts retrofit energy savings. This is based on proposed retrofit packages, time, cost and desired energy savings. It is in principle, unbiased advice as it is not through a single retrofit type or supplier. The City Science Heat as a Service project also found that customers are looking for guarantees and have proposed trialling the Energy Performance Guarantee to provide reassurance that the cost of keeping the home heated to a specified temperature would not exceed a certain limit.

Provide integrated solution packages for homeowners

Integrated solutions provide homeowners with all of the information they require in one place, making the retrofit journey easier. People Powered Retrofit sought to offer end-to-end support, from initial assessments to contractor selection and post-installation verification. Similarly, Sunsave proposed a solution where they integrated financing, installation and comprehensive monitoring as part of the package. Both products will be available with a comprehensive consumer advice journey, including online tools like calculators and detailed offline consultations with advisors, ensuring customers can make informed decisions.

Work with 'profit-focused landlords'

Develop new and innovative financing arrangements

Several projects looked into alternative financing options to attract customers. Scroll's POST-FREE explored financing options that were specifically tailored to landlords, e.g. multiple options of secured/unsecured loans, further advances, and cash-out mortgages, often blended with government grants. PnZ Carbon sought to introduce carbon credits as a way of paying for retrofits without requiring traditional bank loans. In PnZ's proposed model, retrofit measures must be funded upfront before carbon credits can be generated and sold. Crediting is for up to 21 years, providing a long-term income stream for the landlords.

Provide self-serve options, with direct access to an advisor as a backstop

While integrated and self-service solutions can be effective for engaging landlords, many also value independent research and the ability to access tailored advice from trusted parties. Phoenix Group's research found that landlords preferred receiving advice from organisations with specific expertise in the field as well as government-backed sources before committing to financing solutions.

Support 'financially constrained homeowners'

Offer real-time market comparison facilities

Financially constrained consumers want to be reassured that they are getting the most cost-effective retrofit, yet they are often overwhelmed by the numerous options. GLOCERS by Scroll Finance designed a comparison dashboard that evaluates financing options for retrofits and provides real-time eligibility checks, helping homeowners navigate financing options available to them.

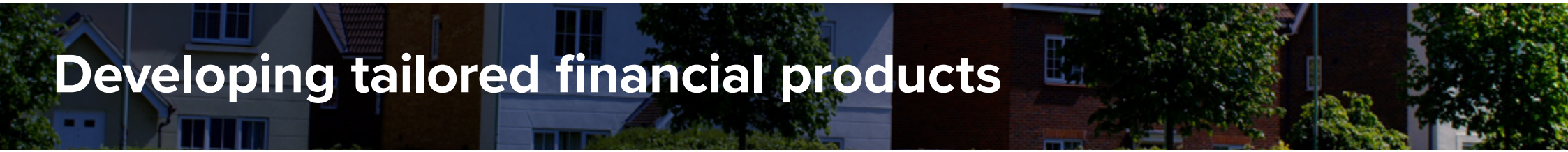
Tackle upfront costs directly as part of the financing arrangements

Upfront costs are seen to deter many financially constrained homeowners from retrofits. ELPS Energy's Price for Performance financial model addresses this by covering up to 100% of upfront costs, leveraging government subsidies, and tying loan repayments to actual energy savings. Similarly, the Virgin Money POWER project gained insights from the 2022 British Gas Net Zero Homes Index which showed that upfront insulation costs were the top barrier to energy efficiency upgrades. This led them to explore how large upfront costs contribute to customer hesitance and how to incorporated cashback incentives to make retrofitting more appealing. E.ON's energy as a service model also sought to tackle upfront costs through developing a proposition that would offer customers low-carbon technologies, such as solar photovoltaics and heat pumps, without up-front capital requirements, through charging a fixed monthly energy service fee.

Persuade 'sceptical homeowners'

Offer personalised energy saving estimates

Personalised savings estimates can encourage sceptical homeowners to engage in retrofit as they can see clear cost and savings projections set out in a tailored way. For example, Kamma aimed to develop a digital platform that allows homeowners to compare energy-saving estimates for different retrofit measures, using property-specific data to calculate potential costs, payback periods, and energy efficiency gains. Chameleon Technology HTC-Up looked to create a full green finance solution, assessing home efficiency, recommending high-impact measures, and providing tailored loans with verified installations.



Developing tailored financial products

Overview of financial products developed in the Discovery Phase

During the Discovery Phase, a range of financial products were explored to encourage the adoption of home energy efficiency, low-carbon heating and micro-generation retrofit measures **(see Figure 6 below).**

Figure 6: Overview of GHFA Discovery Phase financial products

Green mortgage

Incentives like lower interest rates or cashback for home retrofit improvements e.g.

- Green mortgages.
- Lifetime mortgages.
- Remortgaging for retrofits.

Green loan

Secured or unsecured financing for home energy efficiency upgrades, e.g.

- Green loans.
- Secured and unsecured loans.
- Deferred repayment models.

Landlord specific financing

Tailored financial products to improve rental property efficiency, ensuring compliance and profitability, e.g.

- Green buy to let.
- Portfolio wide financing.
- Tenant shared retrofits.

Credit union and co-operatives

Community based financing for affordable energy efficiency loans or group investments, e.g.

- Community based models.
- Credit union lending.

Grants and cashback incentives

Financial support to reduce upfront retrofit costs through grants or partial refunds, e.g.

- Cashback for green retrofit.
- Blended grants.
- Carbon credit financing.

Subscription and lease models

Monthly payment plans for energy upgrades like heating systems or solar panels, e.g.

- Heat as a service.
- Solar as a service.
- Energy service company agreements.

Pay as you save and performance based models

Repayment linked to energy savings, ensuring affordability through reduced bills, e.g.

- Pay as you save.
- Pay for performance.
- Green lease agreements.

Employee benefit schemes

Workplace financing options that help employees afford home energy efficiency upgrades, e.g.

- Interest free loan.

Several Discovery Phase projects found that customers had substantial knowledge gaps which made it hard for them to understand the financial products, their functionality, and the support available to them.

Customer barriers for different financial products

Discovery Phase projects revealed patterns in customer preferences and adoption barriers across these different financial product types. While the specifics varied, consistent themes emerged that provide insights into how these products could be better tailored to their target audience **(see Table 4 below).**

Table 4: Customer barriers for different financial products

Finance product	Customer barriers
Green mortgage	• Customers are hesitant to increase their debt due to concerns around commitment and affordability. • Limited customer understanding of the legal complexities involved in refinancing.
Green loan	• Customers are hesitant to increase their debt due to concerns around commitment and affordability. • Lack of customer awareness causes them to be unclear about the eligibility criteria for each loan. • Lack of education regarding the differences between traditional loans and other options.
Landlord specific financing	• Financing is not linked to key regulatory incentives making the financial benefit less clear. • Regulatory uncertainty causes landlord to delay their uptake.
Grants and cashback incentives	• Criteria for grants are often complex leading to customer confusion. • Customers are overwhelmed with the options and do not know what they are eligible for. • Changes in the regulatory landscape cause uncertainty of available schemes.
Subscription and lease models	• Legal frameworks are too complex for some customers to understand. • Customers are sceptical of long-term service commitments, impacting engagement and trust.
Pay-as-you-save and performance based models	• Customers are sceptical of projected cost savings, needing verified performance guarantees. • Lack of customer awareness means they are unfamiliar with complex financing structures. • Customers lack knowledge on savings based repayment.
Credit union and co-operatives	• Customers require specialised knowledge e.g. on energy efficiency upgrades and home retrofitting, which the credit unions do not have.
Employee benefit schemes	• Employees are reluctant to commit to retrofitting because they do not see an immediate need and have doubts about the long-term benefits. • Employees are hesitant due to concerns over repayment risks.

Case studies

We have provided some case study examples (see below) of ways in which Discovery Phase projects began to overcome these barriers.

Tackling customer barriers through a personalised Helpline service

Heat Scheme Limited

The Employee Clean Heat scheme project encountered multiple barriers to participation including retrofit customers being hesitant to upgrade due to perceived lack of benefits. The project attempted to mitigate this through having a separate, customised telephone advice service that provided relevant information specific to their home, as well as the loan scheme itself. This approach could allow homeowners to understand the benefits of retrofitting without pressure, increasing their confidence and willingness to participate in retrofit.

View more details about the Heat Scheme Limited project here

Using digital platforms to overcome landlords' barriers to engaging in retrofit

Landslide Energy Limited

The Landslide Beta project faced participation challenges as many landlords were reluctant to invest in energy efficiency due to (a) high upfront costs and (b) delays to the government's mandatory EPC C requirements. To address this, Landslide designed a digital platform that provided cost-effective retrofit options. By streamlining access to clear and tailored retrofit pathways, the platform attempts to increase the supply of homes that can qualify for a green mortgage. For homeowners this would mean home improvements that are environmentally sound and have a faster installation time at a lower mortgage rate.

View more details about the Landslide Energy Limited project here

Using research to understand customer groups and their preferences

Aviva Equity Release UK Limited

The Green Lifetime Lending project segmented the consumer group and looked to design an equity release loan for homeowners over 55 years of age. Their research found that older homeowners preferred to finance energy efficiency upgrades primarily through personal savings (69%), with a significant minority also expecting government grants or support (34%). Few considered borrowing, with only 15% open to using equity release or their pension and just 12% considering loans from banks or financial institutions. This shows the importance of the equity solution for this segmentation.

View more details about the Aviva Equity Release UK Limited project here

The case studies show the importance some of the Discovery Phase projects placed on understanding the customer group being targeted and adapting the interaction accordingly.

Overview of lessons learned

The evidence suggests that future projects, as they begin to develop new financial products, should carefully consider the personalisation of information to help reduce knowledge gaps and complexities **(see below).**

Personalise information provision to close knowledge gaps and reduce complexity

Use data and modelling to help close knowledge gaps

Customers often struggle to assess the long-term benefits of retrofit measures, making it harder to justify the investment. To bridge this gap, projects proposed using data and modelling to provide clearer insights into cost-effectiveness and property value impact. Snugg, for example, used their house value impact modelling to help customers understand potential property value improvements post-retrofit. GLOCERS by Scroll developed a cost-benefit dashboard where customers could clearly weigh costs for retrofit and financing against benefits such as energy bill savings.

Provide clear, understandable and trusted advice

Many projects identify complexity, lack of clear information, scepticism about savings and contractor reliability as major barriers. To address this, projects emphasised the need for clear, accessible, and trustworthy guidance to help customers make informed decisions and build confidence in retrofit solutions. Leeds City Council, Living Places, and Phoenix Group all highlight how effective communication, in various formats, can drive engagement and trust.

Build transparency through providing profiles of predictable costs

Customers highlighted a clear desire for easier financial planning. To address this, the City Science Heat as a Service (HaaS) models offered predictable costs with a fixed monthly subscription covering energy and retrofit services. It included Energy Performance Guarantees to reassure homeowners on investment returns, with contract terms designed for long-term price stability. Similarly, Perenna's project aimed to incorporate long-term fixed-rate mortgages with reduced interest rates, if a customer improved the energy efficiency of their home through the installation of air source heat pump and/or solar PV system.

Working effectively with installers

Case studies

Leveraging the local infrastructure to create a retrofit network

Scroll Finance Limited

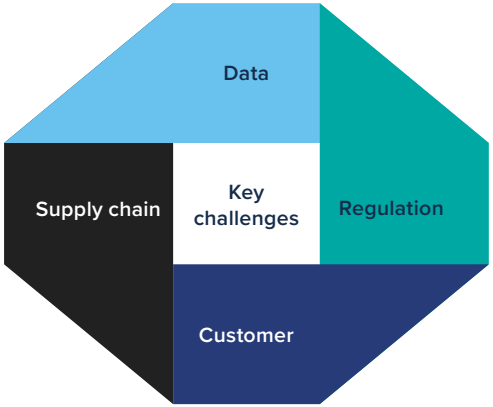
The GLOCERS Project seeks to partner with installers throughout their process, including the pre-installation stage. To do this, they launched their own "retrofit network". This sought to bring together contractors, suppliers, local authority representatives and all others in the supply chain for a monthly event designed to promote the opportunities of retrofit and the benefits of Trustmark and MCS accreditation. This will help to set-up an effective supply chain that holds itself to the highest standards pre-installation.

View more details about the Scroll Finance Limited project here

Overview of what worked in pre-installation

Some of the key challenges encountered by Discovery Phase projects when considering the pre-installation process are illustrated in Figure 7 below.

Figure 7: Key challenges in the pre-installation process



Addressing data gaps: Managing inaccuracies and limitations in EPC data, outdated energy ratings, and inconsistent local authority and financial provider data.
Overcoming regulatory barriers and compliance challenges: Managing regulatory burdens and evolving compliance requirements, including planning and building regulations.
Resolving qualified installer shortages: Mitigating delays, pricing inconsistencies, and the limited availability of certified installers.
Bridging customer awareness and decision making gaps: Increasing customer awareness, reducing financing concerns and hesitance in adopting solutions.

In order to address these challenges, Discovery Phase projects established strong working relationships with a wide range of stakeholders, creating the foundations necessary for the pre-installation stages to progress effectively **(see Figure 8 below).**

Figure 8: Key stakeholders engaged with during pre-installation

01. Councils and governmental organisations: Set policies, administer grants, enforce regulations, support skills development, and educate homeowners.

02. Installers and contractors: Conduct site assessments, provide quotes, recommend best retrofit measures, educate homeowners, install upgrades, ensure compliance, and coordinate materials.

03. Technology and data providers: Offer AI-driven assessments, smart meter integration, and enable data-driven financing models.

04. Community and non-profits: Educate homeowners, promote access to retrofits, and support community-led financing models.

05. Installer networks: Offer a network of accredited installers.

06. Quality assurance providers: Certify installers and assessors to uphold industry standards and provide network of accredited professionals

07. Energy assessors and retrofit coordinators, verification bodies: Conduct energy audits, verify grant eligibility, and ensure compliance with retrofit standards.

08. Financial institutions Assess eligibility, approve loans, and finance retrofits, and ensure funds go to approved measures.

Key installer challenges

Table 5 below illustrates some of the key installer challenges encountered during Discovery Phase projects.

Table 5: Overview of key installer challenges in the Discovery Phase

Issue	Challenges
Changing policy environment	• Uncertainty over the availability and consistency of government incentives. • Policy uncertainty affecting the home retrofit sector. • Lack of ongoing investment.
Qualified installer shortages	• Lack of trained installers to meet demand. • Complex accreditation processes slowing entry. • Lengthy hiring and training periods. • Complex verification requirements.
Financing and cash flow constraints	• High upfront costs for installations. • Delayed payments impacting cash flow. • Long payment cycles, creating financial strain. • Slow grant processing delaying funding.
Challenges of attracting customers	• Long customer education times to drive awareness. • High marketing costs to reach potential buyers. • Demand fluctuations, making planning difficult.

Case studies

An example of how one of the Discovery Phase projects aimed to resolve financial and cashflow constraints is provided in the case study below.

Using new funding models to address risk and finance issues (Scroll Finance Limited)

The POST-FREE project explored a point-of-sale funding platform to tackle key retrofit financing challenges. Lenders hesitated due to regulatory risks, complexity of energy efficiency installations, and verification concerns, while installers faced cash flow delays, restricting project scalability. To address this, the project proposed direct funding to contractors upon customer invoice confirmation. This aimed to ensure funds were used for retrofit work; it also endeavoured to streamline finance access, reduce cash flow constraints, and make the process more efficient for both installers and lenders.

View more details about the Scroll Finance Limited project here

A particular challenge tackled by Discovery Phase projects related to how best to match customers with installers. An overview of the main methods projects used to do this is **shown in Figure 9 below.**

The case study below highlights one project that used a place-based approach to match customers with installers. It created a 'regional ecosystem' to simplify connections, enhance accessibility, and support adoption.

Using place-based approaches to match customers with installers (Leeds City Council)

The Leeds Low Carbon Accelerator emphasised the role of a one-stop-shop approach, which integrates advice, financing, and installer connections. The project sought to address fragmented supply chains by creating a regional ecosystem where homeowners could easily access trusted retrofit professionals. Such approaches help by simplifying the customer journey, reducing confusion, and ensuring homeowners receive clear guidance on available retrofit options. By bridging knowledge gaps and streamlining access to regional qualified installers, this model seeks to enhances trust, accelerates decision-making, and supports wider adoption of energy efficiency measures.

View more details about the Leeds City Council project here

Figure 9: Common methods Discovery Phase projects planned to use to match customers with installers

Customer group	Strategies for engaging customer groups	Partnership networks
Planned to use digital platforms to streamline connections between homeowners and vetted installers by integrating energy data, financing, and cost estimates, and installers.	Projects commonly defaulted to using schemes such as TrustMark and MCS to efficiently match customers with vetted installers, helping ensure high-quality surveys and retrofit execution.	Collaborating with local installers, contractor associations, and community groups was common for building a broad and reliable installer network, but with scalability challenges.

Case studies

A large number of Discovery Phase projects relied on accreditations and standard verification processes such as MCS, Verra and PAS 2035, as they found that quality assurance was important across all customer groups **(see case study below).**

Using established quality and verification bodies to drive engagement in retrofit (PnZ Carbon)

The Retrofit Credit Securitisation project design relies on robust accreditation systems such as Trustmark and MCS to verify that retrofit measures meet nationally recognised standards for quality, safety, and environmental compliance. Third-party verification bodies, approved under the Verified Carbon Standard, can allow for independent validation of the project's emission reduction calculations through methods like the Adjusted Consumption, pre- and post-retrofit energy assessment. By aiming to integrate established certifications and compliance documentation (e.g. PAS, building regulations, and MCS certificates), projects attempt to ensure consumer confidence and strengthen the financial viability of green home investments by guaranteeing high-quality retrofits and credible energy savings.

View more details about the PnZ Carbon project here

The importance of installation verification

Installation verification is a critical step in ensuring the success and integrity of retrofit projects, providing confidence to all stakeholders involved. The verification process for different stakeholders, along with the challenges different stakeholders are likely to encounter, are **outlined in Figure 10 below.**

Figure 10: Verification processes for different stakeholders - overview and key challenges

Customers

Assess their eligibility for loans or grants and undergo energy evaluations to determine retrofit feasibility, confirm the retrofit is completed.

Key challenges:

- Limited understanding of the verification process.
- Concerns over installer performance and quality.

Finance institutions

Verify customer eligibility, conduct credit checks, and approve financing for retrofits, monitor ongoing energy performance to ensure loan conditions are met.

Key challenges:

- Ensuring funds are used for approved measures.
- Difficulty tracking actual versus predicted savings.
- Risk of overestimated savings affecting repayments.

Installers

Install retrofit measures, ensuring compliance with standards, and provide evidence during installation, verify measures function as expected and meet performance criteria.

Key challenges:

- High costs and complexity of compliance.
- Difficulty keeping up with evolving compliance standards.
- Unclear verification requirements.

Quality assurance providers

Conduct energy assessments, feasibility checks, and mid-project audits, confirm that energy savings and compliance with standards are achieved.

Key challenges:

- Lengthy and complex certification processes.
- Inconsistent verification standards across schemes.
- Shortage of certified installers and retrofit assessors.

Technology and data companies

Establish data collection setup, digital tools and protocols, create and apply data validation and performance analysis tools for quality and installation checks.

Key challenges:

- Limited access to reliable property and customer data.
- Difficulties predicting retrofit performance and its verification.

Councils and government organisations

Disburse funds, ensure compliance with grant conditions and monitor progress through reports, audits, and performance checks to confirm energy savings.

Key challenges:

- Conflicting reports from installers and verifiers.
- Manual compliance checks delaying approvals.
- Mismatch between EPC-based verification and actual performance.

Overview of lessons learned

The evidence suggests that, to drive effective engagement with installers, future projects should carefully consider two key areas along with specific actions for each **(see below).**

Develop installer and supplier capacity

Create financial incentives for installer retention and growth

With a limited pool of qualified installers and strong competition for their skills, projects can use financial incentives to encourage long-term participation. Ashman Bank suggests that offering staggered payments could improve cash flow for installers, making participation in retrofit schemes a more attractive option. Meanwhile, PnZ Carbon explored upskilling installers on carbon credit-backed financing, along with training and certification programmes, to boost engagement and expand the qualified workforce.

Use technology effectively to address data gaps

Use smart technologies to support retrofit

Multiple projects have explored integrating smart meters, sensor data, and energy performance prediction technologies to address EPC data gaps, including inconsistencies, inaccuracies, and outdated retrofit impact data. To address this ELPS Energy is developing a dynamic, AI-driven forecasting engine using smart meter data and physics-based models to predict energy consumption. The Chameleon Technology HTC-Up project explored incorporating pre- and post-verification systems using smart meter data for more reliable, real-life energy efficiency calculations. By enhancing verification processes throughout the retrofit journey, these tools could improve data accuracy and operational efficiency if implemented at scale.

Conclusions

Summary

This Synthesis Report has provided an overview of the findings and lessons learned from the Discovery Phase projects of the GHFA. The 26 Projects varied significantly; they were located in different parts of the country and targeted diverse types of homeowners and customer groups. They all sought to develop a wide range of different financial products and services. Notwithstanding the differences, this Synthesis Report shows that many of the projects had similar experiences and encountered similar issues. In particular, the work undertaken here suggests that the following thematic areas represent a core, common feature of the Discovery Phase experience:

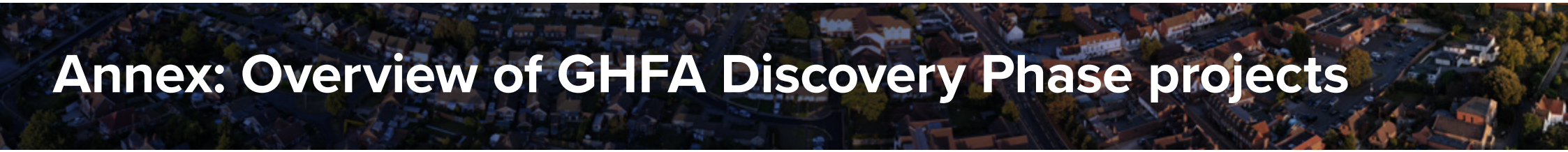
- **Building successful partnerships** - it was clear that, where Discovery Phase projects made good progress, they generally did so on the basis of having built strong strategic and working relationships with financial institutions and other relevant stakeholders. The evidence suggests strongly that project partners had to invest significantly in establishing and nurturing these partnerships;
- **Understanding the retrofit customer** - across the 26 Projects, 4 main customer groups emerged as the main focus of the Discovery Phase - 'able-to-pay homeowners', 'profit-focused landlords', 'financially constrained homeowners' and 'sceptical homeowners'. The evidence strongly suggests that one size doesn't fit all and, in particular, that all forms of communication and engagement with customers need to be carefully tailored to the specific characteristics and incentives of the different groups;
- **Developing tailored financial products** - Discovery Phase projects researched and tested a wide range of new and innovative financial products and services, each of which was associated with a particular set of customer barriers and challenges. The key learning here was around, firstly, the importance of having research and evidence to understand customer preferences and, secondly, the need to ensure that the different customer groups were engaged in a bespoke manner, e.g. using digital front doors and personalised Helpline services.
- **Working effectively with installers** - Discovery Phase projects encountered a range of particular challenges in relation to working alongside installers, and used their projects to consider and test how such challenges could be overcome. For example, many projects encountered a highly constrained local supply chain of installers, and some began to address this by creating local "retrofit networks" that brought together suppliers, contractors, local authorities and other stakeholders.

As outlined earlier, the GHFA Discovery Phase (Oct '22 - Sept '23) was the precursor to the GHFA Pilot Phase (Sept '23 - June '25), during which 13 of the 26 Projects received additional funding to create and test their products and services. This Synthesis Report suggests strongly that the Discovery Phase has been useful, particularly in terms of identifying and evidencing some of the key issues and challenges that Pilot projects will need to address. The evidence is also highly relevant for other retrofit projects, outside DESNZ and the GHFA programme and it is hoped that, by applying some of the learning set out in this report, future retrofit projects will be able to refine their approaches and maximise their impact. Finally, it is worth noting that the GHFA model which had a pre-Pilot Discovery Phase, is relatively uncommon in the portfolio of UK Government grant programmes; the model should perhaps therefore be considered more widely by policy officials and grants practitioners, given how useful it has proved in a GHFA context.

Further information

Please follow the links in the table below to discover more about the individual projects and the next steps of the GHFA programme.

More information on the GHFA	Link to Green Home Finance Accelerator: Discovery and Pilot Phase projects
Overview of Discovery Phase reports	Link to Green Home Finance Accelerator: Discovery Phase projects

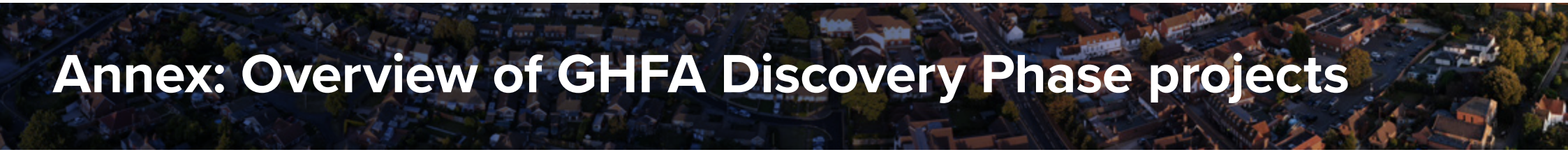


Annex: Overview of GHFA Discovery Phase projects

The table below summarises the Discovery Phase projects, detailing the project lead and title, the company's sector and service area, the project's purpose, and its key features.

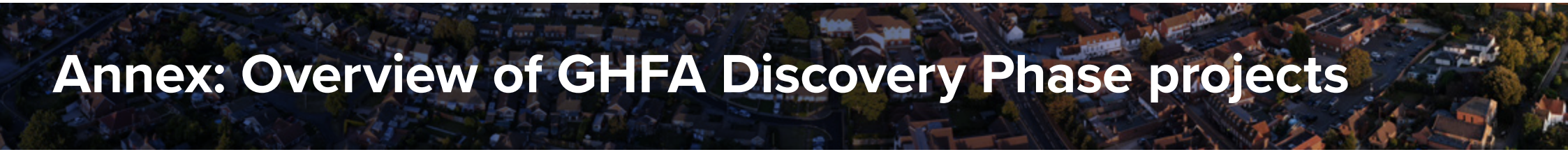
Table 6: Overview of GHFA Discovery Phase projects

Project lead and title	Organisation type / Project type	Purpose	Key features of project ("Look at this project if you're interested in...")
Ashman Bank Limited **Project Siberian Tiger**	**Financial services:** Financial services	This project led by Ashman Bank, in partnership with ThermaFY Eco Solutions, aims to develop a first-of-its-kind Impact buy-to-let (IBTL) mortgage product founded on its understanding of the real estate market and a desire to be part of the future of real estate decarbonisation. An innovative data tool will assess the retrofitting works needed to enhance the energy efficiency of an asset, now and in the future.	• Impact buy-to-let loan. • Landlord support & retrofit advice. • Cashback incentives & EPC improvements. • Digital-first customer experience. • Market insights & policy adaptation.
Aviva Equity Release UK Limited **Green Lifetime Lending**	**Financial services:** Financial services	This project aims to research and develop an equity release proposition, targeted as a cost-effective way of funding home improvements to improve the energy efficiency (and the EPC rating) of customers' homes.	• Green equity release loan. • Consumer confidence & knowledge gaps. • Financial incentives & affordability. • Market research & customer segmentation. • End-to-end retrofit support
Chameleon Technology (UK) Limited **HTC-Up**	**Digital expert**: One-stop-shop	This project aims to develop a green finance offer which gives domestic homeowners a complete solution to help them to accurately assess their home energy efficiency. It will recommend products which achieve maximum impact and offer a tailored loan product to meet their needs/budget with a clear/simple route to credible, approved suppliers. It will verify that the home improvement measure has been installed and consider any next steps which would improve the property.	• Real-time home energy performance assessment. • Green finance research. • Smart energy insights & recommendations. • Verified installation & performance tracking. • Overcoming consumer barriers.



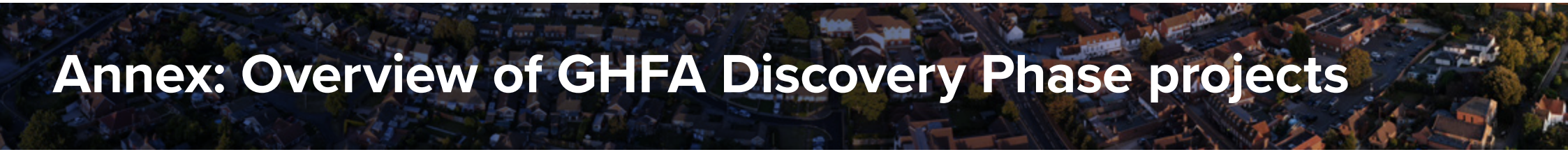
Annex: Overview of GHFA Discovery Phase projects

Project lead and title	Organisation type / Project type	Purpose	Key features of project ("Look at this project if you're interested in...")
City Science Corporation Limited Buy-To-Let Decarbonisation System	**Financial services:** One-stop-shop	This project will explore ways to provide buy-to-let landlords with a comprehensive solution for upgrading their properties, leveraging the knowledge and expertise of mortgage brokers to make the process easier and more cost-effective. It aims to deliver a new service that integrates energy efficiency data with the most appropriate portfolio-level financing options.	• Digital platform and one-stop-shop for landlords. • Regulatory & market adaptation. • Advice & information research. • Landlord attitudes & barriers. • Automation & scalability.
City Science Corporation Limited Legal and Commercial Structuring of Heat as a Service	**Legal:** Financial services	This project will explore the ways of providing Heat as a Service (HaaS) to customers via various plans including on a subscription basis, with the provider responsible for the funding, installation and maintenance of the heating system and any retrofit measures.	• Heat-as-a-service (HaaS) model. • Consumer barriers & engagement. • Legal & regulatory framework. • Financial & commercial structuring. • Market viability & adoption challenges.
Cybermoor Services Limited Net Zero Communities	**Other:** One-stop-shop	The aim of Net Zero Communities (NZC) is to design a process to raise investment for low carbon community heating schemes, with the view that people will invest in community share capital in NZC at a lower rate of return because their investment delivers wider social and environmental benefits within their community. Their share of capital can be withdrawn in the future but not transferred.	• Community-led heat decarbonisation. • Community share finance model. • Consumer & market research. • Local renewable energy integration. • Stakeholder, suppliers & technical research.
ELPS Energy Limited Integrated Solution for Residential Retrofit Financing	**Retrofit services:** One-stop-shop	The aim of this project is to develop an integrated solution for residential retrofit financing. It will work to deliver a one-stop-shop platform for energy efficiency works, connecting vetted suppliers and consumers, and providing innovative Pay-For-Performance (P4P) financing solutions.	• Integrated retrofit financing. • Pay-for-performance (P4P) model. • AI-driven energy forecasting. • Consumer and market research. • Regulatory and financial frameworks.



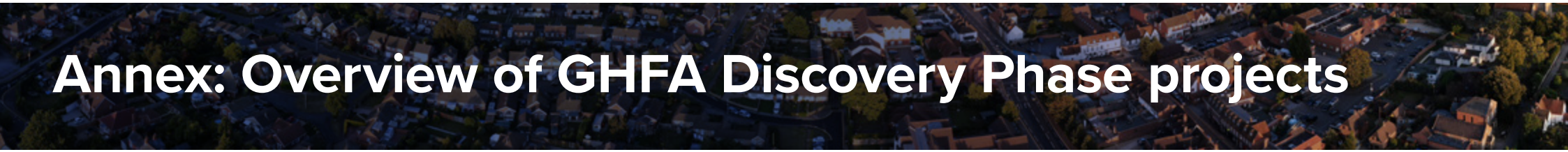
Annex: Overview of GHFA Discovery Phase projects

Project lead and title	Organisation type / Project type	Purpose	Key features of project ("Look at this project if you're interested in...")
Energy Saving Trust Enterprises Limited Retrofit Proposition Toolkit	**Energy experts:** Digital platform	This project aims to test a service to provide Journeys to Green Finance. This would overcome barriers for homeowners (particularly private landlords) in terms of access to finance for retrofit; knowledge about measures, costs and benefits; access to quality installers; confidence in delivery; and securing consents for works to proceed.	• End-to-end retrofit finance toolkit. • Consumer & lender support. • Flexible & modular service. • Quality assurance. • Market research & policy adaptation.
E.ON Energy Solutions Limited EON's Optimised Energy as a service	**Energy experts:** Retrofitters	This project aims to develop innovative green finance products (e.g. Heat/ Energy as a Service) that enable home energy efficiency, low-carbon heating and potentially micro-generation improvements. It aims to develop a green finance market model which can be replicated nationally beyond the lifetime of the programme.	• Heat and energy as a service model. • Consumer cost savings & financing. • Home Energy Management system (HEMS). • Market research & consumer appeal. • Regulatory & lender engagement.
Escrow-Tech Limited Carbon Adjust: Adjusted Loan Rate Setting for financing Green Home Improvement Activities	**Digital expert:** Financial services	This project aims to reduce the cost of decarbonising residential homes by generating carbon credits. The target end users were the able-to-pay homeowners who will be impacted by future energy efficiency and/or carbon reduction targets. They were ideally those poorly served by the existing green financing market and not eligible for support under government energy efficiency support schemes.	• Carbon credit-backed retrofit financing. • One-stop digital retrofit platform. • Flexible demand participation. • Carbon credit monetisation. • Strategic partnerships & market expansion.
Heat Scheme Limited Employee Clean Heat	**Energy experts:** Financial services	This project aims to develop a UK-wide green home finance loan product, for use in bridging the gap between the upfront cost of a gas boiler replacement and the net cost of a heat pump installation after applying a Boiler Upgrade Scheme (BUS) grant. The project explored the extent to which such a product could be provided as an employee benefit scheme.	• Green home finance loan. • Employer-based financing model. • Consumer guidance & advice. • Market readiness & challenges. • Verification & quality assurance.



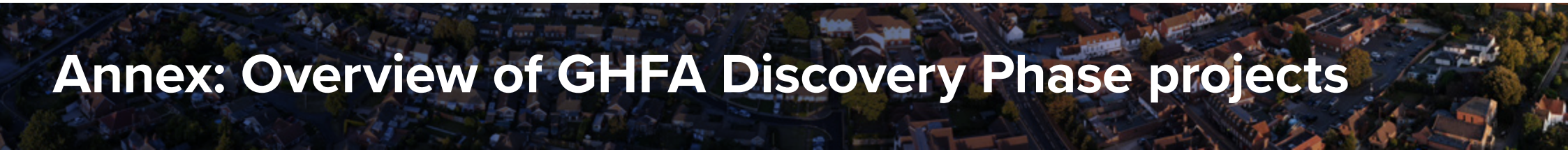
Annex: Overview of GHFA Discovery Phase projects

Project lead and title	Organisation type / Project type	Purpose	Key features of project ("Look at this project if you're interested in...")
Kamma Limited **Green Home Optimiser**	**Other:** One-stop-shop	This project aims to drive energy efficiency retrofit upgrades in UK properties by developing an online, end-to-end retrofit marketplace connecting homeowners, green finance providers and retrofit installers.	• Data-driven retrofit planning. • Green finance integration. • Consumer engagement & education. • Connecting homeowners with trusted retrofit providers. • Data-driven progress tracking.
Landslide Energy Limited **Landslide Beta**	**Retrofit services**: One-stop-shop	The objective of Landslide Beta was to assess the potential application of energy cost factor (ECF) scoring technology in improving how residential retrofits are designed and executed. The expected outcome was to enable retrofit designs that achieve shorter payback periods as measured by energy efficiency gains, thereby testing homeowner demand and willingness to pay. The project aimed to find cheaper, faster and smarter retrofit options for privately owned properties with an energy performance certificate (EPC) rating of D or lower, in different scenarios depending on different retail energy pricing models (price cap, nodal, type of use, time of use, etc.).	• Modular & smart home retrofit design software. • Targeting private landlords. • Overcoming EPC barriers. • Reducing retrofit complexity.
Leeds City Council **Leeds Low Carbon Accelerator**	**Other:** One-stop-shop	This project aims to design and deliver at speed a scalable, replicable, hyper local, place-based concept for retrofit and decarbonisation of homes. The concept involves utilising a one-stop-shop delivery vehicle to create and test a range of green finance retrofit offers, including the potential for a Property Linked Finance product.	• Hyper local one-stop-shop retrofit model. • Consumer research & market research. • Smart tariff integration. • Local partnerships & policy engagement.
Living Places **Retrofit ROI Heatmap** **Blending Retail and Institutional Finance**	**Financial Services:** Digital platform	This project aims to design a service which will map the scale of potential energy bill reductions from carrying out a deep retrofit, relative to the cost of achieving them on a home-by-home basis. This will show which homes make economic sense to retrofit and which would require greater subsidy. It will support individual homeowner decision making but also allow analysis on how whole areas or property portfolios could be aggregated.	• Green finance platform (Software-as-a-Service). • Local authority & mortgage provider insights. • Home retrofit financing segmentation. • Market barriers & consumer adoption.



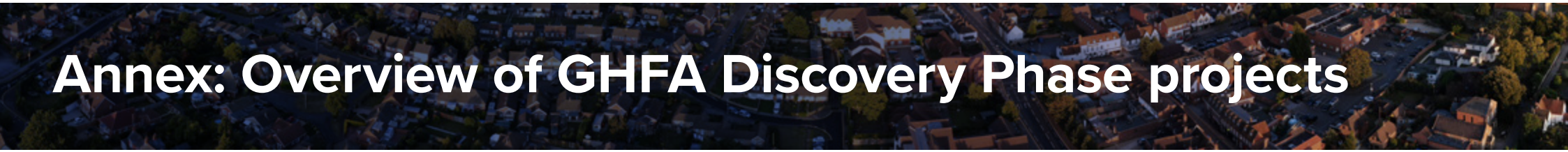
Annex: Overview of GHFA Discovery Phase projects

Project lead and title	Organisation type / Project type	Purpose	Key features of project ("Look at this project if you're interested in...")
Parity Projects Limited Empower OSS	**Energy experts:** One-stop-shop	This customer-centered project investigated the potential for a sustainable retrofit one-stop-shop that empowers homeowners and overcomes barriers in the retrofit journey. The hub will allow consumers to develop their plans and compare finance and installation offers over time.	• Retrofit one-stop-shop. • Overcoming barriers to retrofit. • Integration with green finance. • Verification & quality assurance. • Consumer-centric approach.
People Powered Retrofit Limited Credit Union finance - a place based one stop shop for retrofit	**Other:** Financial services	This project aims to be a retrofit one-stop-shop service using Credit Union finance. A Green Home Improvement Loan product is aimed at Credit Union members in particularly middle-low income households, enabling them to upgrade their homes. The one-stop-shop for retrofit loans seeks to engage with those who have the majority of funds already in place allowing them to increase the scale of their retrofit works.	• Credit Union retrofit finance. • One-stop-shop. • Loan product. • Overcoming consumer barriers. • Verification & quality assurance. • Scaling & market positioning.
Perenna Bank PLC Designing a green mortgage to tackle homeowner barriers to retrofit	**Financial services:** Financial services	This project aims to develop a long-term fixed rate mortgage, offering customers a reduced interest rate if they make their home more energy efficient. Customers are provided with tailored advice through HEMS, through which they can verify installation.	• Green mortgage with retrofit incentives. • Overcoming retrofit barriers. • Integration of Home Energy • Management System. • Target market & consumer insights. • Automated verification.
Phoenix Group Management Services Limited Decarbonising Homes with Lifetime Mortgages	**Financial services:** Financial services	The project aims to develop an end-to-end customer journey including advice and installation of decarbonising home improvements and distribution of lifetime mortgage products. The project seeks to gain insights into the drivers and barriers older, less-affluent homeowners have in reducing the emission from their homes and gather feedback on potential solutions.	• Green lifetime mortgage proposition. • Consumer research & barriers. • Fixed interest & staggered funding. • Cashback incentives. • Consumer research.



Annex: Overview of GHFA Discovery Phase projects

Project lead and title	Organisation type / Project type	Purpose	Key features of project ("Look at this project if you're interested in...")
PnZ Carbon (formerly Arctica Partners Limited) Retrofit Credit Securitisation	**Financial services:** Financial services	This project looks to facilitate the UK's transition to Net Zero by funding the affordable retrofitting of British homes from the commercial demand for transparent, localised carbon credits.	• Carbon credits for retrofitting. • Upfront financing via securitisation. • Targeting low & middle-income households. • Market & investor engagement. • Social impact.
Scroll Finance Limited Point of Sale Technology for Financing Retrofits and Energy Efficiency (POST FREE)	**Financial services:** Financial services	This project aims to develop a point-of-sale financing technology solution, specifically for retrofitting and low-carbon projects. The solution would be offered to homeowners and landlords through builders and/or their sub-contractors (including assessors and installers). The project will adopt an incremental, geographic area-based approach to offer industry-standard energy efficiency and low-carbon measures to homeowners. It would follow a simple approach aimed at upgrading the fabric of the building first, before tackling more complex measures.	• Point-of-sale finance platform development. • Consumer barriers & market insights. • Partner engagement. • Integrated retrofit process. • Verification & consumer protection.
Scroll Finance Limited Green Line of Credit Embedded in Retrofit Services (GLOCERS Project)	**Financial services:** Financial services	The GLOCERS project seeks to create a Green Home Equity Line of Credit (Green HELOC), to help consumers fund their upfront retrofitting cost. They will seek to do this by creating a One-Stop-Shop product identifying the problems, finding the right retrofitting solutions and understanding how these changes will affect the home equity, before connecting to accredited installers and monitoring the outcomes.	• Green Home Hub development. • Finance and grant integration. • Consumer education & support. • Carbon credit monetisation. • Smart meter & house value tracking.
Snugg Green Home Hub	**Energy experts:** Digital platform	This project aims to undertake research to inform the development of a Green Home Hub (GHH). The Green Home Hub is a digital platform consisting of an engaging user experience, underpinned by a range of data-enabled capabilities that enable the creation of a retrofit case for its users, with seamless integration of green home finance products.	• Green Home Hub development. • Finance and grant integration. • Consumer education and support. • Carbon credit monetisation. • Smart meter and house value tracking.



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Sunsave Group Limited The Electric Roof project	**Retrofit services:** Retrofitters	This projects aims to address barriers to rooftop solar adoption by homeowners in the UK, by researching integrated solar finance propositions (e.g. solar-as-a-service). This proposition involves making rooftop solar and storage accessible to all UK homeowners, with payment in a subscription type format.	• Solar-as-a-service model. • Consumer barriers & adoption. • Install verification & quality assurance. • Regulatory & market engagement.
Virgin Money POWER Project	**Financial services:** Financial services	This project aims to remove the upfront cost barrier to installing retrofit measures facing the 'able-to-pay' market, as well as providing robust technical guidance on appropriate energy efficiency improvement measures to consumers.	• Green retrofit mortgage. • Consumer education & engagement. • Data-driven decision making. • Verification & fraud prevention. • Market & regulatory alignment.