Green Finance Institute

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Green Finance Quarterly

How risk-sharing can catalyse private investment in the green transition

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In the battle to mitigate and adapt to climate change, huge numbers are often quoted – we need $100 billion a year for loss and damage, the UK needs £60 billion a year to finance net zero, we need to move from billions to trillions. The challenge is often framed around the propensity and ability of governments to borrow in order to invest. Ultimately what matters is the ability of governments to deploy what capital they have to crowd in private sector capital. Only private investment has the firepower we need. *How we unleash it is the subject of this second edition of the Green Finance Quarterly.*

Blended finance is a catch-all term for this form of structured finance that incorporates public or philanthropic capital to mobilise private sector capital, but ultimately investors need to know what they are investing in, what the risk-return profiles of the projects are and what risk-sharing mechanisms are needed to create an additional pipeline. If public capital is not bringing in new private investment, it is replacing or competing with private capital. To achieve its objective, it must be catalytic, and take on risk that the private sector is currently not willing or able to take.

Secondly, interventions need to be sectoral. Public to private leverage ratios will differ in different sectors, as will the risk-sharing apparatus we need. In this issue we look at several different opportunities. Our Battery Investment Facility crowds in private investment by providing loan guarantees to drive investment which supports scaling companies in the EV battery supply chain. Our Utilisation Linked Finance solution allows chargepoint operators to repay their finance once a chargepoint becomes revenue-generating. Finally, our GF^2 initiative in South Africa provides credit-enhancement to climate infrastructure projects, increasing their suitability for local institutional investors.

In this issue, we also look at the opportunities in Natural Flood Management. If we are to attract private investors to this nascent market, we will need to design sophisticated risk-sharing opportunities and develop brand new business models. At present, we need more supply, more demand and the market infrastructure, data and standards to connect them.

There is a debate to be had about shifting the risk-reward expectations of mainstream, commercial financial institutions but in the meantime, blended finance is a key tool. If we are to attract private investors at scale, however, we need to get specific on sectors and the types of interventions we need. The GFI is looking at several, but the real opportunity comes with scale and deploying these solutions in other sectors across Nationally Determined Contributions (NDCs). If you are interested in hearing more, please get in touch at comms@gfi.green.

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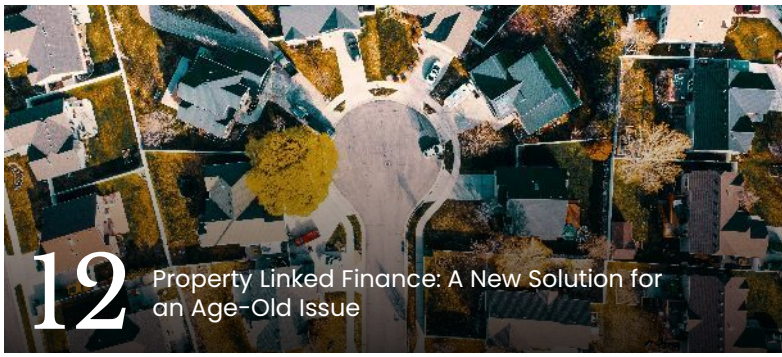

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Demonstrating and Scaling Blended Finance in the EV Battery Supply Chain

Blended finance is the strategic use of public or philanthropic sources of capital to crowd in private sector investment for sustainable outcomes. While blended finance is often celebrated as one of the key tools in our arsenal to finance solutions for the climate crisis, rarely have any blended finance deals been scaled. It is however increasingly recognised as a critical solution to bridge the funding gap, as it can be used to leverage many multiples of private finance while delivering risk-adjusted returns for private investors.

Blended finance presents clear benefits, including:

- Increasing the number of bankable projects for investment
- Making capital available to markets and sectors that otherwise wouldn't have access to mainstream finance
- Commercialising solutions, freeing up public capital to re-invest

In our "What next for risk-sharing?" paper, we outline how, in the context of blended finance, there are several options for public capital deployment primarily in the form of debt and equity. Crucial to both is taking a sector-specific approach when blending different sources of finance.

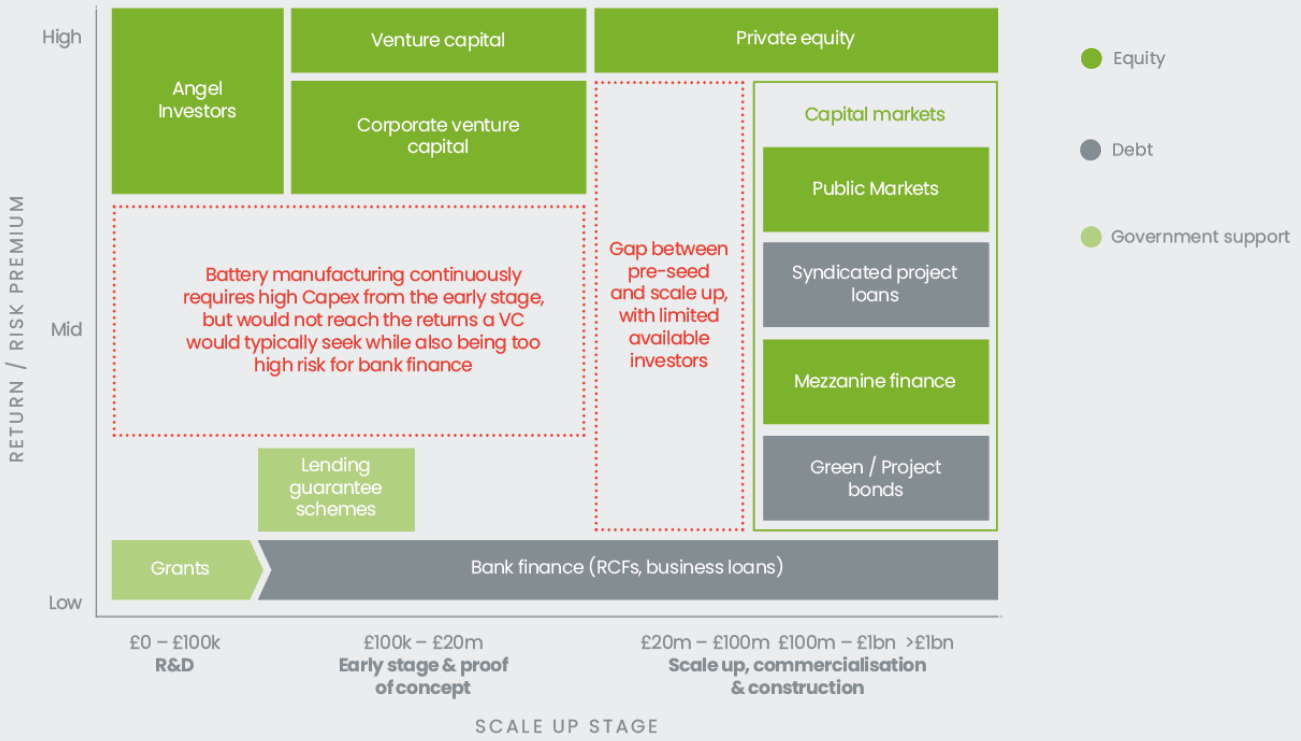
We have looked extensively at the UK battery supply chain as a specific use case, and how blended finance can be deployed in this key sector of the economy to boost supply chain resilience. The UK's automotive sector is critical to the UK economy, turning over £79 billion a year and directly employing c. 800,000 across the wider automotive industry. Transitioning this sector to net zero through battery electric vehicles is essential.

The UK has the foundations to foster a thriving battery supply chain. The grant landscape has successfully driven investment to date in UK start-ups, but to enable these businesses to scale and access long-term private finance, an innovative approach to deploying public capital is required. When automotive companies exit the grant landscape and look to scale, a gap remains where companies struggle to access finance before they are seen as sufficiently de-risked.

Without continued investment in this sector beyond grants, battery companies will either fail to grow in the UK or seek investment in other geographies – we are already seeing battery companies depart to the US, where the Inflation Reduction Act offers attractive subsidies that will enable them to scale.

Battery supply chain financing landscape

Routes to accessing finance at different stages for battery technology companies vary depending on the development stage, amount sought and risk profile.



After engaging with financiers, industry and existing government grant bodies, the GFI has designed the Battery Investment Facility (BIF), a blended finance facility with potential to crowd in 3-5 times initial public investment via a co-investment model. This structured solution allows public capital to go further for longer, with no additional cost or risk – providing taxpayer value for money and allowing battery companies to cross the scale up gap and deliver on their full potential.

This Facility will invest in key building blocks of the whole battery supply chain, pivotal to securing the long-term future of both existing and future large-scale battery manufacturing plants in the UK. This is particularly crucial in the light of announcements by JLR and BMW to invest in the UK. To deliver on these proposed projects, we need to secure a local supply chain.

To meet demand for EV manufacturing globally, the battery market will need to grow rapidly. Estimates for the market value in 2030 range from $116 billion[1] to $278 billion[2] from a global market value of around $46bn in 2021.[3] The BIF is a blended finance model that shares risk between the public and private sectors, which can be replicated across sectors, geographies, and markets – and scaled. We are working to deliver this risk-sharing model in the UK and invite you to get in touch if you would like to help us.

1. Markets and Markets (2021, June) Lithium-Ion Battery Market with COVID-19 Impact Analysis, by Type (Li-NMC, LFP, LCO, LTO, LMO, NCA), Capacity, Voltage, Industry (Consumer Electronics, Automotive, Power, Industrial), & Region (North America, Europe, APAC & RoW) – Global Forecast to 2030. https://www.marketsandmarkets. com/Market-Reports/lithium-ion-battery-market-49714593.html?gclid=EAIaIQobChMI26Ws-vvV7wIV1AiICR2PrAUMEAAYASAAEgJFvD_BwE
2. Precedence Research (2022, March) Lithium-ion Battery Market (By Product: Lithium cobalt oxide, Lithium iron phosphate, Lithium nickel cobalt aluminum oxide, Lithium manganese oxide, Lithium titanate, Lithium nickel manganese cobalt; By Application: Consumer Electronics, Automotive, Industrial, Energy Storage System; By Capacity: 0–3,000 mAh, 3,000–10,000 mAh, 10,000–60,000 mAh, 60,000 mAh and Above; By Component; By Voltage) - Global Industry Analysis, Size, Share, Growth, Trends, Regional Outlook, and Forecast 2022 – 2030. https://www.precedenceresearch.com/lithium-ion-battery-market
3. BNEF (2021, October) Global Lithium-Ion Battery Supply Chain Ranking 2021-2026. https://www.bnef.com/insights/27437/view

Financing South Africa's Energy Transition

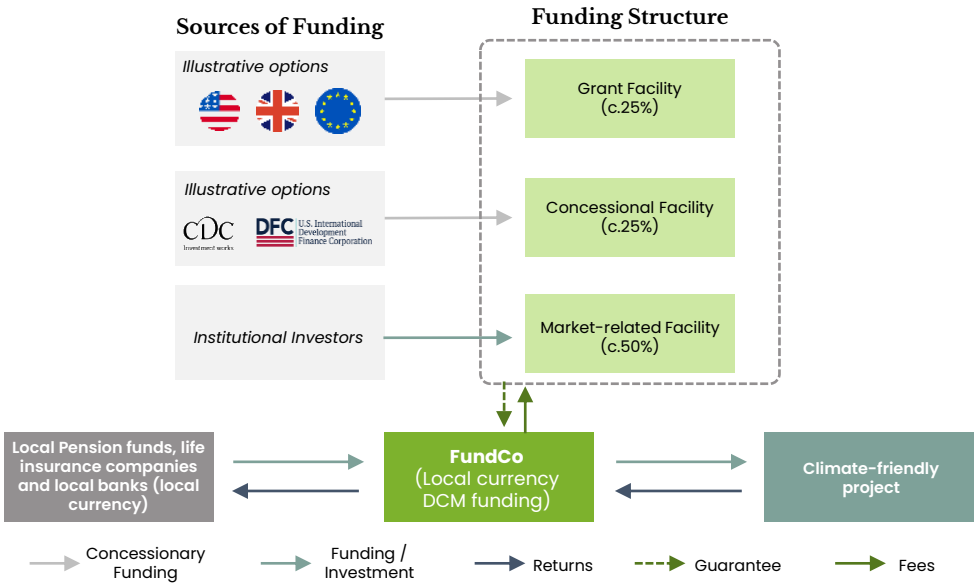
At COP28, it was noted with "deep regret[1]" that the long-term climate finance goal of US$100 billion per year agreed at the Paris COP in 2015 had not been met. According to the latest OECD data, of the US$89.6 billion climate finance mobilised by developed countries in 2021, only 16% of this was private finance (US$14.4B in 2021)[2]. A new climate finance goal, the New Collective Qualitative Goal, will be worked through at COP29, and will need to meet the challenge of an estimated US$5.8 trillion of Nationally Defined Contribution (NDC) needs from developing countries to 2030[3].

In Africa, a continent the CPI estimates[4] requires US$277bn annually to meet its 2030 climate goals, private finance contributed just 14% in 2020[5]. The largest climate financing gap is across the group of countries that represent Southern Africa and within these, South Africa has the highest need at US$107 billion[6] annually, despite only contributing 1.1% to global greenhouse gas (GHG) emissions[7]. With approximately 92%[8] of power generation coming from locally sourced coal, South Africa's energy sector is a clear priority for climate-smart infrastructure finance and, as one of the largest polluters, municipalities have the greatest potential to reduce the country's carbon footprint. Under the nation's Just Energy Transition plans, municipalities make up 21% of the funding required, with the electricity sector requiring over US$47B between 2023-2027[9].

1. https://unfccc.int/documents/636613
2. https://www.oecd.org/environment/growth-accelerated-in-the-climate-finance-provided-and-mobilised-in-2021-but-developed-countries-remain-short.htm#:~:text=16%2F11%2F2023%20%2D%20Climate,of%20climate%20finance%20annually%20for
3. https://unfccc.int/sites/default/files/resource/54307_2%20-%20UNFCCC%20First%20NDR%20summary%20-%20V6.pdf
4. https://www.climatepolicyinitiative.org/publication/landscape-of-climate-finance-in-africa/
5. https://www.climatepolicyinitiative.org/wp-content/uploads/2022/09/Africa-Landscape-Figure-10-1.png
6. https://www.climatepolicyinitiative.org/publication/landscape-of-climate-finance-in-africa/
7. https://climatepromise.undp.org/what-we-do/where-we-work/south-africa
8. https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15932-WB_South%20Africa%20Country%20Profile-WEB.pdf
9. https://pccommissionflo.imgix.net/uploads/images/South-Africas-Just-Energy-Transition-Investment-Plan-JET-IP-2023-2027-FINAL.pdf ?

The need is well quantified but the challenge around bringing private capital to-market remains. Risk versus return is the fulcrum on which most financial decisions rest; and the key risks to manage when looking to crowd-in local investment in South Africa are currency and credit worthiness. Although international capital, particularly from development finance institutions, may offer lower interest rates, fluctuations between local currency revenues and USD/EUR denominated debt servicing can thwart projects.

Domestic financial institutions and institutional investors with deep pools of capital are well-positioned to provide local-currency funding for infrastructure projects but need a guarantee facility to improve the credit rating of projects, particularly those involving novel technologies. The Green Finance Guarantee Facility, or GF^2, has been designed by the GFI in direct response to requests from the financial and public sectors for an efficient instrument targeted at climate-smart infrastructure that can de-risk transactions to expedite the flow of funds from local financial institutions to project sponsors.



In 2024, GF^2 will join the market with other credit enhancement facilities such as the World Bank's Multilateral Investment Guarantee Agency (MIGA), the European Union's guarantees through International Partnerships (INT PA) and the United States Agency for International Development's Office of Development Credit (USAID DCA) which is now housed within the United States Development Finance Corporation (US DFC). While these groups have collectively mobilised billions of dollars for projects over the past few years, as described above, the demand in the market significantly outstrips the aggregated capacity of the existing facilities. Furthermore, these facilities have a broad sector focus, looking at a wide range of projects across their target geographies, whereas GF^2 is focused on climate-smart infrastructure.

GF^2 is designed to de-risk investments by financial sector stakeholders, particularly long-term institutional investors, into climate-smart infrastructure projects sponsored by municipalities. The Facility changes the perception of risk associated with these projects by raising the credit rating of the project sponsor to make financing possible by local investors in local currency. By focusing exclusively on climate-smart infrastructure and blending public and private funds to achieve scale and sustainability, the GFI's GF^2 is designed to crowd-in primary, catalytic capital. The Green Finance Institute is working on delivering this, initially in South Africa, before expanding across geographies.

Stimulating Investment into a New Asset Class: Natural Flood Management

A Green Finance Institute piece written in partnership with:

Keith Ashcroft

Chair | Lake District Foundation

Flooding is already the number one natural hazard in UK, costing the country £2.2 billion each year in damage and management costs. [1]

Climate change is only going to make this worse. In the first week of 2024 alone, over 300 flood warnings were issued in Britain and more than 1,000 homes were damaged.[2] In October 2023, Storm Babet resulted in the third-wettest independent three-day period in a series for England and Wales since 1891.[3] Going forward, if global temperatures continue to rise by just 2°C, there could be a 20% increase in heavy rainfall events by 2100 [4], increasing the risk of flooding and damages to people, property and businesses.

Investment in traditional flood risk infrastructure, such as flood walls, will not be as cost effective in covering the potential increased costs associated with managing flood risk[5] going forward, and a more holistic approach to funding and delivering flood risk management is therefore required. Natural Flood Management (NFM) offers a complimentary approach that can help mitigate the effects of a changing climate. NFM interventions seek to restore the natural processes of a catchment to reduce flood risk through techniques such as tree planting, improving soil management, and urban green infrastructure.[6] These interventions also deliver a host of other ecosystem services including biodiversity uplift, carbon sequestration, and water quality improvements.

Further private sector capital will be needed to scale NFM across our landscapes, but this is not moving at the scale or pace required to adapt and build resilience to climate change. While there are examples of where NFM can attract private sector finance, with some projects attracting upfront investment[7], this is the exception, rather than the norm. As part of a work package commissioned by the Department for Environment, Food and Rural Affairs (Defra), the GFI has been working with a cross-sector Strategic Working Group to identify the major barriers that are preventing private finance from moving at scale into delivering NFM.

1. https://www.edie.net/flood-damage-costs-could-rise-by-20-in-uk-due-to-climate-crisis/
2. https://www.theguardian.com/uk-news/live/2024/jan/05/uk-weather-storm-henk-rain-flooding-england-latest-news
3. Met Office. Storm Babet, 18 – 21 October 2023.
4. https://www.metoffice.gov.uk/research/climate/maps-and-data/about/state-of-climate
5. Moody's RMS, Flood Re. Evaluating the Performance of UK Flood Defences Under Climate Change.
6. Environment Agency, 2018. Working with Natural Processes. Evidence Directory.
7. An example is The Wyre Natural Flood Management Project

The private sector and NFM

NFM projects that are not able to source sufficient funding from government sources, may need to plug that funding gap from other sources. Such sources may include the private sector in the form of ecosystem service buyers and/or upfront investors. However, these projects would require sufficient demand from a wide pool of potential 'buyers' in order to secure sufficient revenue streams from the sale of flood risk reduction and other ecosystem services to plug this gap to reach financial viability.

A lack of demand for the ecosystem services generated by NFM projects is a significant blocker to the wider uptake of NFM by the private sector.

A combination of a lack of awareness of and confidence in the efficacy of NFM in reducing flood risks for businesses, a lack of strategic coordination and prioritisation of NFM delivery, and challenges around ecosystem service markets, among others, are all preventing potential ecosystem service buyers from paying for NFM outcomes.

Without sufficient demand, revenue streams cannot be secured to cover operational and revenue costs of the projects, and/or secure upfront repayable investment. Driving demand from the private sector, and aggregating buyers of the ecosystem services offered by flood resilience to share the costs and risks of the initial investment between them, could be pivotal to increase the capital flowing into NFM projects in the UK.

A lack of demand for the ecosystem services generated by NFM projects is a significant blocker to the wider uptake of NFM by the private sector.

Guaranteeing a Just and Equitable EV Transition

A Green Finance Institute piece written in partnership with:

Matthew Jennings

Global Commercial Leader, Pay-per-use Solutions | DLL

The United Nations has estimated that the transport sector is responsible for around one quarter of global greenhouse gas emissions[1], of which road transport accounts for almost 75%.[2]

One of the biggest barriers to electrifying transport is installing appropriate charging infrastructure fairly across the country. A challenge that drivers and financiers regularly highlight is that charging infrastructure won't be installed unless there are electric vehicle (EV) drivers to use it; and drivers won't switch to an EV unless they are confident there are chargepoints they can use. In addition, investors and installers have identified uncertainty of short to medium term utilisation rates, driven by a lack of historic and forecasted data, as being a key barrier to installation in areas where traffic flows are less predictable. The consequence of this is that seasonal and rural areas risk being left behind, causing EV uptake to lag due to lower driver confidence.

To increase EV adoption, we need to build infrastructure ahead of demand, in places where it is not yet commercially attractive due to limited EV drivers, but where it is required to give consumers and businesses confidence to switch – this will significantly accelerate the global transition to electrified transport and enable a just transition.

1. https://www.un.org/sites/un2.un.org/files/media_gstc/FACT_SHEET_Climate_Change.pdf
2. https://www.iea.org/energy-system/transport

TRANSPORT

Financing EV charging infrastructure

Utilisation Linked Finance (ULF) is an innovative financial solution that can de-risk investment in charging infrastructure. ULF is structured to enable chargepoint operators, local authorities, and businesses to pay for chargepoint installations over time, in alignment with their use. As payments scale with utilisation, this can give installers a greater level of comfort when deploying infrastructure, encouraging them to build in areas where short-term utilisation and demand is less certain.

Spearheaded by the GFI and delivered in partnership with global asset finance group DLL, we are launching ULF through DLL's Pay-per-use (PPU) solution. It can support employers wanting to install EV chargepoints for employees and their electrified fleet; local businesses including hotels, restaurants and supermarkets who want to install chargepoints to meet growing customer demand; as well as heavy goods vehicles (HGV) operators wanting to electrify depots; and local government.

Increasing access to charging infrastructure is crucial to enable the EV transition up and down the country, and it can also play a role in balancing the grid in areas where there is excess energy supply. For example, parts of the UK often generate excess energy through wind power, resulting in the need to reduce or turn off wind turbines, to cater to local grid capacity.

Guarantees

Private finance is more likely to mobilise where there is proven commercial viability and risks are identified and managed. Yet green investments can often include nascent technologies and untested business models that limit investor confidence.

Guarantees can be an effective mechanism to help share and manage these risks. A traditional financial guarantee is a contractual promise of payment to meet a debt obligation. In effect, guarantees act as a type of warranty or insurance policy. Guarantees on debt secured by another party can be provided by Governments, philanthropists, banks, insurance companies, development banks and even individuals. Their use is broad; for example, Governments can provide guarantees for infrastructure projects. Risk sharing between private and public sectors in products such as ULF can unlock additional private investment by covering a portion of the risks.

A lack of data on chargepoint utilisation is the main factor for decreased investor confidence. Guarantees can be used as an effective tool to boost this confidence until there is further data available. A guarantee that shares in the utilisation risk can materially catalyse more private finance for charging infrastructure. While leverage ratios vary in different sectors and markets, ULF shows how guarantees can be deployed innovatively to crowd-in private finance and boost investor confidence.

Now that there is proof of concept, we are working closely with partners to scale ULF across the UK and other geographies. If you would like to learn more, please reach out to cdrt@gfi.green.

Property Linked Finance: A New Solution for an Age-Old Issue

As we emerge from winter and chilling temperatures across Europe, many households will have cranked up their radiators to help them through the cold snap. But with energy bills at eyewatering levels, staying warm is a costly business.

Research by Citizens Advice suggests that 58% of renters in England are struggling with damp, mould or excessive cold in their home, adding up to 2.7 million households, which include 1.6 million children.[1] Damp homes also cost the NHS £1.4 billion a year.[2]

Research commissioned by the GFI in 2022 showed that nine in 10 people considered the energy-efficiency of their homes to be important, up from 83% before the energy price crisis. However, only 20% of individuals were likely to use existing types of finance to undertake upgrade works.

But it's not just homes that are the problem. PwC has estimated that as much as 85% of the UK's office stock falls short of proposed standards.[3]

At a time when public balance sheets are stretched, we need to find innovative new mechanisms to unlock private investment in retrofit, but undertaking this massive programme will be expensive. According to the Climate Change Committee, an estimated £360 billion of investment is needed to upgrade the UK's inefficient buildings by 2050.[4]

Our November 2023 research shows that developing and introducing Property Linked Finance (PLF) – an innovative form of finance – to the UK market in collaboration with the finance and retrofit industries has the potential to enable between £52 billion and £70 billion of private capital into upgrading 2.1 million owner-occupied homes rated EPC D and below.[5] There is also significant potential to scale it across other geographies.

1. More than one and a half million children in England live in cold, damp or mouldy private rented homes, Citizens Advice reveals - Citizens Advice
2. Health inequalities: Cold or damp homes - House of Commons Library (parliament.uk)
3. UK office landlords could spend over £65 billion over the next 7 years in order to meet new energy efficiency regulatory requirements (pwc.co.uk)
4. Sixth Carbon Budget - Climate Change Committee (theccc.org.uk)
5. A4 PORTRAIT (greenfinanceinstitute.com)

Building on this research, the GFI is co-designing PLF in the UK, Spain, Denmark and across other developed markets, harnessing our financial expertise and pragmatic approach to delivering real-economy outcomes. PLF is based on the US Property Assessed Clean Energy (PACE) model, which has enabled the investment of over $13 billion of capital into making homes and commercial buildings greener and more resilient, according to PACENation, the US trade body.[6]

PLF can support residential and commercial property owners to fund up to 100% of the upfront costs of energy efficiency upgrades. The finance is linked to the property, rather than to the property owner, meaning that the payment obligation transfers to the new owner when it is sold. Property owners would only pay for energy efficiency measures until they sell their property, while new buyers benefit from a more energy efficient, potentially more valuable property, in return for continuing to make regular payments towards the upgrades.

The GFI's design principles for a PLF solution in the UK include:

- A customer-centric approach to driving home energy improvements
- Delivery within the current legislative landscape, so that its operationalisation is feasible and practical
- A design that is flexible and adaptable to different building tenures, geographies and capital providers, in order to drive the widest possible reach and funding potential.

The markets in which PLF establishes itself could benefit from cornerstone investment or de-risking guarantees to support early stages of the market, until sufficient risk data has been collected to support more analytical risk models.

By building a viable model for PLF, we are laying the groundwork for a thriving and scalable market that can help accelerate the journey towards decarbonising homes, as well as commercial and public buildings. We have the opportunity to shape PLF into a new global asset class and scale this solution across both developed and developing markets.

6. PACENation - Property Assessed Clean Energy Financing

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