

Call for Evidence

WHF: innovative finance for investments and loans

Repowering London and Dark Matter Labs unabridged response

Questions

Answers

Section 1: WHF strategic case, aims and scope

1. Do you agree with our assessment of the strategic opportunities, challenges and risks presented by warm homes financial transactions? Please provide evidence to support your response.

Our specific interest in the WHF is related to the funding and nurturing of high-capital, high complexity local energy systems (integrating multiple decarbonisation technologies such as heat pumps, solar PV, electrical and thermal storage, heat recovery and cooling etc.) that are rooted in community ownership.

Broadly we agree with the overall direction, but there are three fundamental limitations in the assessment that, if left unaddressed, will cause the WHF to underdeliver — and may in some cases actively harm those it's designed to serve.

First, the assessment frames the strategic opportunity primarily in terms of market stimulation: using public capital to de-risk a sector and crowd in private finance that will then deliver benefits to consumers. This is a coherent goal, but it treats ownership as incidental to delivery. The experience of infrastructure privatisation in the UK over the past four decades provides consistent evidence that once an asset transitions from public or community ownership to private ownership (even if built with public capital) the long-run distribution of value shifts decisively toward investors and away from consumers. Heat networks are a particular risk in this respect. They are natural monopolies with captive customers, have long asset lives, and emergent regulatory oversight. The assessment should explicitly address the ownership question and recognise that public capital used to build infrastructure that is then privately owned is not a neutral outcome.

Second, the assessment's characterisation of the challenge as primarily one of demand is incomplete. In our experience working on heat networks and community energy development, the more fundamental constraint is not that households do not want warm, cheap, low-carbon homes but that they do not trust the delivery vehicles

available to them. The evidence on green finance demand cited in the assessment (low take-up despite availability) is more plausibly explained by a lack of trust in operators, complexity of products and opaque pricing than by insufficient interest.

This is where we believe there should be a great emphasis placed on supporting and establishing new models of shared ownership between the public and civic sectors that can address this trust deficit directly. Residents are more willing to connect to a heat network, or take on a loan for a heat pump, when they have a genuine governance stake in the system and when they can see that the financial benefits accrue locally. This is not a marginal effect — it is central to achieving the connection rates and installation rates that make the economics of heat networks work.

Third, the assessment's preference for non-subsidised finance risks becoming a structural bias against the models most capable of delivering social value. Community and consumer-owned infrastructure typically has longer payback periods, more complex pre-development phases, and lower headline financial returns than commercially-operated equivalents. If the fund's default evaluation criterion is return to government, these models will be systematically passed over in favour of private operators with cleaner financial profiles but weaker distributional outcomes. This will systematically bias against strategically important projects that may not have profitable enough commercial returns needed for existing private sector actors to deem them viable. This is particularly true of heat decarbonisation in the residential sector in high density urban areas that will likely be underserved by electrification and have disproportionately higher levels of deprivation and low income.

The assessment should be explicit that some allocation of the fund — particularly the £600 million earmarked for low income households, and any support for community energy and heat networks — will operate on a different logic where long-run social and ownership outcomes are weighted alongside financial returns.

3. What wider loan or equity-based interventions in the warm homes market could unlock demand at scale?

We identify four specific intervention types that could unlock demand at scale within this framing.

1. **Public-civic equity vehicles.** The fund should offer equity investment into joint venture vehicles co-owned by local councils and community energy organisations. These vehicles — structured as community benefit societies, co-operatives or CICs with strong governance protections — can act as the developer, operator and long-term owner of heat networks, community solar schemes and local flexibility assets. Government equity in these vehicles provides both the capital to develop at scale and the governance lever to enforce community benefit conditions over the lifetime of the asset. Because the vehicle is locally anchored and democratically governed, it generates the

consumer trust that translates into connection rates and technology uptake that commercially-operated models cannot achieve in residential settings.

2. Patient long-term debt facilities for community energy vehicles. Community benefit societies and cooperatives can raise capital through community share offers, but this typically reaches a ceiling well below what is needed for heat networks or larger generation projects. A dedicated long-term loan facility — at near-gilt rates, secured against the asset and revenue stream, with twenty-five to thirty year terms — would enable community energy organisations to develop infrastructure at a scale they currently cannot reach. This is the model that enables the asset to be built without requiring a private investor to extract a risk premium that makes heat prices unaffordable.
3. Area-based blended finance with a collective ownership requirement. Rather than financing individual household upgrades one by one, the fund should test area-based approaches in which an entire neighbourhood or estate is treated as the investment unit. A council or housing association identifies an area, commissions feasibility and engagement work, negotiates a collective connection or upgrade package, and accesses blended finance to deliver it. Residents receive cheaper energy and lower bills without needing to individually navigate finance products or assess technical options. The key design criterion is that the asset resulting from this investment — whether a heat network, a community solar scheme, or a local battery — is owned by the residents or their local authority, not by the delivery partner.
4. Guaranteed revenue floors for community-owned assets. One of the primary barriers to financing community and council-owned energy infrastructure is revenue uncertainty, particularly in the early years of operation before connection rates stabilise. Government guarantees or minimum revenue floors, underwriting a minimum income stream from a community-owned heat network or solar scheme for an initial period, would dramatically improve the financeability of these projects without requiring ongoing subsidy. This is a targeted use of the government's balance sheet that enables patient private and institutional capital to co-invest alongside government and community, on terms that preserve community ownership.

4. How should the WHF ensure that it includes an offer suitable for those on low incomes? Any information on specific models is encouraged.

The most effective and equitable route to warm homes for low-income households is not individual finance but collective infrastructure that low-income households can access as consumers, not as debtors.

When a community energy organisation or council-led joint venture owns a heat network or local solar scheme, low-income households can benefit from significantly

cheaper energy without needing creditworthiness, taking on additional debt, or navigating complex finance products. The ownership model does the work of redistribution that individual loan products cannot. This means the £600 million low-income allocation should prioritise:

- Area-based infrastructure investment in fuel-poor neighbourhoods, in which the funded asset provides below-market energy to all residents in the area, with targeted tariff support for the most vulnerable households. The finance goes to the asset owner (a council or community vehicle), not to the individual household.
- Health-housing-energy partnerships that use NHS and social care savings as part of the business case and potentially as co-funders. The Building Research Establishment estimates that cold homes cost the NHS £540 million per year. The Warm Home Prescription pilot showed £5 of social value for every £1 of expenditure. These savings are real and should be brought inside the financing model, enabling the fund to invest in upgrades for high-risk households where the direct energy savings alone would not justify the cost.
- Grant-loan blends for community energy buildings that serve low-income populations — community centres, foodbanks, social housing common areas — where the building hosts generation assets that provide cheap power to residents and to the wider neighbourhood.
- Pre-payment and tariff-linked models in which households in community owned schemes access energy at a fixed, below-market rate underwritten by the fund, with no individual repayment obligation, repayment being embedded in the overall revenue model of the community or council-owned vehicle. We would caution against designing the low-income offer primarily around more generous loan terms for individuals — longer tenors, lower rates, income-contingent repayment.

While these may have a role for some households, they do not reach the households in deepest fuel poverty, they perpetuate the logic of individual debt rather than collective ownership, and they are administratively complex to target accurately. The fund's low-income ambition will be most credibly realised through collective, place-based models, such as our Repowered Community approach (see Q66), that make ownership structural rather than symbolic.

5. Do you agree with the proposed overarching aims of the WHF? Please provide evidence to support your answer.

It defines success in terms of deployment volume and cost reduction, without specifying who benefits from that deployment, how, or over what timeframe. These omissions risk creating a framework of aims that is compatible with private extraction of value from publicly-capitalised infrastructure, and negate the distributional and democratic dimensions of the energy transition that the WHP itself identifies as central.

We agree that reducing consumer energy bills and accelerating decarbonisation are the primary outcomes. We would argue for three additions to the aims that we feel would improve the WHF's design and evaluation.

1. An explicit ownership aim; the WHF should aim not merely to support the deployment of low carbon technologies, but to ensure that the long-run value generated by that deployment — lower energy costs, surplus revenues, asset appreciation — is retained by consumers and communities rather than captured by private investors. This does not mean that private finance has no role; it means that the governance and ownership structure of funded assets should be designed to ensure community benefit is durable, not contingent on regulatory intervention after the fact.
2. A distributional aim; the WHF should aim to ensure that the benefits of decarbonisation are shared equitably, with fuel-poor and low-income households experiencing genuine, lasting reductions in energy costs rather than being bypassed by a transition that primarily benefits those with assets and savings. This requires the fund to track and report distributional outcomes — not just aggregate bill savings or installation numbers — and to treat equity of access as a design criterion alongside financial return.
3. A local economic aim; the WHF should aim to build durable local economic capacity in communities hosting energy infrastructure — through local employment and skills, through community share in the revenues of local energy assets, and through the development of local organisations capable of owning and operating infrastructure over the long term. This is consistent with the WHP's emphasis on jobs and economic growth, but gives that ambition a more specific and community-centred expression.

8. Do you agree with the proposed list of activities the WHF could support and are there any other types of activities that should be supported?

The list has a significant gap: it treats all activities as happening downstream of the decision to build and the capacity to develop.

In practice, the hardest and most consequential work happens upstream of construction, in the design of governance structures, the building of community consent, the legal and financial structuring of ownership vehicles, and the coordination of demand across an area. If the fund does not support these upstream activities, it will find that the downstream activities it does support produce assets with weak governance, low connection rates, and long-run ownership structures that fail to deliver community benefit.

We would therefore propose the following additions to the activities list:

- Pre-development and feasibility; heat mapping, building surveys, demand analysis, and the technical assessment work that determines whether a project is viable. This is genuinely high-risk work that neither private operators

nor community organisations can be expected to absorb without dedicated funding. Without it, projects that are theoretically viable never reach the point of being financeable.

- Governance design and legal structuring; setting up a non-profit CLG, CBS, coop., or joint public-civic vehicle requires specialist legal and governance expertise that most councils and community organisations do not have in-house. The fund should support the cost of this work.
- Community engagement and co-design; connection rates on heat networks which determine financial viability depend critically on whether residents trust the operator and understand the proposition. Community engagement is not a soft add-on to technical delivery, it is a core determinant of project viability.
- Local energy system planning and integration; at present the activities list treats each technology as a separate installation. The next generation of flexible, local energy systems (integrating heat networks, community solar, local battery/heat storage, and demand flexibility) requires coordinated planning across these components. The WHF should support local authorities and civic organisations in developing integrated local energy plans that treat the neighbourhood or district as the unit of system design.
- Cross-area coordination and demand aggregation; viability improves significantly with scale, and scale can be achieved by coordinating development across multiple local authority areas to aggregate demand. The WHF should support the coordination costs involved in multi-partner, multi-area development, including shared development infrastructure, replicable procurement routes, and inter-authority collaboration models.

12. Do you agree with the proposed list of groups that the WHF may support and are there any other groups which should be supported?

The proposed eligibility list is broadly appropriate and we support the inclusion of community energy and retrofit projects, VCSEs, local authorities, and heat networks. However, we would propose two specific amendments and additions that are necessary to make the list fit for purpose in supporting a public-civic ownership model for local energy systems.

First, public-civic joint venture vehicles should be added as an explicit eligible group. These vehicles are typically structured as non-profit CLGs, CICs, community benefit societies, or cooperatives. They are jointly established by a local authority and one or more community energy organisations to develop and operate local energy infrastructure. They are neither purely public (they sit off the council's balance sheet and involve community governance) nor purely private (they have asset locks and community benefit obligations). Under the current list, they might be absorbed into 'community energy and retrofit projects' or 'local authorities', but neither category accurately captures their hybrid character or their specific financing needs. Making them explicitly eligible — with clear criteria about governance structure and

community ownership requirements — would signal that this is a supported development route and reduce legal uncertainty for these types of local partnerships.

Second, 'heat networks' in the eligibility list should be amended to distinguish between consumer/community-owned heat networks and privately-operated ones. The financing needs, governance requirements, and public benefit cases of these two categories are substantially different. A consumer-owned heat network cooperative has financing needs (pre-development grants, long-term patient debt, government equity) that differ substantially from a private heat network operator seeking construction finance. Conflating them in a single category risks designing the fund's heat network offer around the most commercially straightforward cases rather than those most aligned with the WHPs overall aims.

Section 2F: Heat networks

61. How could the WHF support the market growth of heat networks as set out in the WHP?

The WHF can most effectively support heat network development by enabling a new type of developer: public-civic partnerships in which local authorities and one or more community energy organisations act as co-developers and long-term co-owners, alongside private heat network developers and operators.

This model is being developed in several locations across the country, including our ongoing work in Newham, London (Repowered Community Newham), Lothian Heat in Scotland, and in Tanygrisiau, N. Wales (Tanygrisiau Community Heat).

This model combines the council's convening power, planning authority, and long-term mandate, with the community organisation's legitimacy, local trust, and democratic governance. Neither partner can do this alone: councils typically lack the specialist capability and governance infrastructure; community energy organisations lack the asset base, procurement capacity and planning levers. Together, they create a viable, non-extractive development option that we believe can improve both the feasibility of residential heat decarbonisation, as well as the long term legitimacy and local economic benefit that a new energy system embodies.

The WHP identifies trust and local certainty as two of its central pillars, both of which are materially strengthened by local and community ownership. Government proposals for heat network zoning state that residents are more willing to connect to a heat network where they have a direct stake in governance and where surplus revenues return as a benefit to the local area.

The WHF should therefore treat consumer and community owned models not as a niche variant of heat network delivery, but as a primary route to scale residential heating decarbonisation.

We envision the WHF could support this by:

1. Providing dedicated pre-development and feasibility funding for public-civic joint ventures;
2. Establishing or backing a support 'unit' offering embedded technical, legal and governance expertise to councils and community organisations starting this work;
3. Offering or guaranteeing capital arrangements on terms that preserve community benefit over the asset life;
4. Coordinating across local authority areas to enable demand aggregation and network use at scale.

62. Would investment in heat networks – whether for connection costs, compliance with Heat Network Technical Assurance Scheme requirements, capital support – contribute to the draft Warm Homes Fund aims? When could benefits be realised, and what risks need to be considered? Please give evidence to support your answer.

Investment in heat networks can contribute strongly to the WHF aims — particularly around affordable warmth, decarbonisation of heat, and building local economic capacity — but only if the ownership structure is designed to ensure those benefits are retained by a combination of local authorities, consumers and local communities. Heat networks are capital-intensive upfront but, once the debt is repaid, they offer very low operating costs and a stable revenue base. That financial profile is well suited to patient, mission-aligned capital such as the WHF.

As networks reach maturity (provided the development and support funding is there to do so) it can deliver genuinely affordable heat prices, as well as cross-subsidise connection and energy costs for lower-income households. Benefits such as lower bills and carbon savings can realistically begin flowing within three to five years of a network going live, though the social ownership dividends compound significantly over a ten-to-twenty-year horizon.

In order for these benefits to be fully realised, the WHF would need to be designed around structural rules that discourage commercial interests overriding community/consumer ones.

Network development that is supported by the WHF should require that any investment is conditional on binding governance protections (e.g. asset locks, community veto rights on disposal, and surplus distribution rules); building in step-in rights and transparent mechanisms if governance fails, and making community or consumer ownership a precondition for concessional capital associated with residential heating supply.

63. Is there a need for finance here, and what are the barriers that prevent the private sector from filling it?

There is a clear and substantial financing gap that the private sector cannot and will not fill on terms compatible with the WHP's public-value goals.

Private capital in this market gravitates towards large, high-density schemes with predictable anchor demand (typically commercial or high-density residential), shorter payback periods, and maximum operational flexibility for the operator. Whilst heat network zoning has encouraged this demand as a market accelerator, it is our belief that this will both delay and discourage the supply of low-carbon heat to existing residential properties, and risk jeopardizing the aims and time-bound targets of the WHP. The schemes most important for the WHP — lower-density residential areas, mixed-tenure streets, communities where building trust and achieving connection rates requires time, relationship and local legitimacy — are precisely those that do not attract private investment at acceptable prices.

The barriers to private sector participation in public-purpose heat network models are structural, not incidental. Achieving adequate connection rates in residential settings requires sustained community engagement, which private operators do not have an incentive to do at the depth required. The governance structures required to maintain consumer benefit — community board representation, asset locks, regulated pricing — are incompatible with private ownership models seeking to maximise returns or exit. There is also a pre-development barrier. Feasibility work, legal structuring of public-civic joint ventures, community engagement, and heat mapping are expensive and risky at early stages.

Public and community-interest organisations cannot absorb these costs without dedicated pre-development funding. This is a particularly acute market failure because the social value of getting the development phase right — establishing durable governance, securing connection commitments, future-proofing the heat source — far exceeds what any individual investor would rationally pay for it.

64. How could government finance address this gap with repayable finance where the government earns a return? Where possible, please describe how this model could work.

Government can earn a financial return from heat network investment while actively preserving community benefit, provided the financing structure is designed with this dual objective from the outset rather than treating them as competing. The key is to deploy capital at different stages and in different forms, calibrated to the risk profile and ownership structure of each stage. At the pre-development stage, grant or returnable grant funding for feasibility, legal structuring and community engagement is appropriate.

This is genuinely high-risk, pre-commercial work where the social returns (schemes that would otherwise never be built, governance that locks in community benefit for decades) vastly exceed the financial returns.

A portion of this could be structured as a recoverable grant, repaid from the proceeds of construction finance once the scheme is capitalised. At the construction

and commissioning stage, government can provide long-term, low-interest loans or equity stakes in joint-venture vehicles. Heat networks are stable, income-generating assets once operational, and government capital deployed here can earn a modest but predictable return over a longer period (15-50 years).

Blended finance structures, in which government aims to crowd in institutional or mission-aligned capital at commercially acceptable rates, can extend the reach of public capital.

Critically, any structure in which government earns a return should include clear conditions on ownership and governance at the point of finance. Equity stakes by government or a public development institution in a joint-venture vehicle with a local authority and community energy organisation provides direct leverage to enforce these conditions over the asset's lifetime. This is a more reliable protection than regulation alone.

65. What are the wider policy barriers that may need to be overcome to realise the benefits from the outlined investments into heat networks? Please consider any specific areas of law, regulation or other policy which may need to change.

Three policy areas present the most significant barriers to a public-civic ownership model for heat networks at scale:

1. The scope of heat network zoning policy is designed around demand designation but does not adequately address supply-side architecture or ownership. Zoning designed only around demand can be served by any operator, including private ones, and do not in themselves drive community or consumer ownership. Zones should also be able to specify minimum ownership and governance requirements as a condition of development rights.
2. The current investment vehicle framing of the WHF itself (structured primarily to earn returns and recycle capital into further investment) risks systematically underweighting the social-value and innovation case that public/civic ownership models create. Government needs to be explicit that some portion of the WHF is not a revolving investment vehicle but a social infrastructure fund, and therefore willing to accept lower or longer horizon returns in exchange for durable public/civic ownership and consumer protection outcomes.
3. The current commitments to consumer protection are insufficient given the longevity of heat network assets and the vulnerability of residents who become dependent on them. A statutory framework for both consumer and local community benefit in heat network governance should be developed, requiring that any heat network development vehicle, model or organisation receiving public capital adopt a governance structure with minimum protections; an asset lock, a consumer representation mechanism, publicly

reported pricing methodology, and restrictions on network disposal without consumer consent. This would provide a clear and replicable template for public-civic joint ventures, reducing transaction costs in setting up new schemes.

Section 2G: Community energy

66. How would investments in community energy projects (including generation and flexibility) or community buildings support the draft Warm Homes Fund aims, when could benefits be realised, and what risks need to be considered? Please give evidence to support your answer.

The Repowered Community is Repowering London's vehicle for establishing locally owned community energy networks – integrating heat networks, community solar, local battery/heat storage, and demand flexibility to supply reduced cost heat and electricity to households. Local public-civic joint venture vehicles (see previous responses) are responsible for these networks and operate them on a not-for-profit basis - with any surplus income generated passed on to consumers as further savings.

The Repowered Community model is built on four pillars – local energy ownership, green skills development, affordable and accessible energy, and clean energy generation – and area-based deployment tackles the social and technical aspects of decarbonisation holistically at a borough-wide scale. Benefits delivered include: Lower cost energy, warmer and healthier homes, fuel poverty reduction, pollution reduction, reduced energy demand, carbon savings, local economy investment, funding for local priorities, skilled workforce development, normalisation of cooperative principles, more active and informed citizens, and greater sense of belonging and community.

Financing needs to acknowledge and support innovation projects such as this with more patient and flexible funding structures (e.g. development, capacity building, or social infrastructure funds) that are accommodating of longer payback periods, more complex pre-development periods, and lower financial returns than commercially-operated equivalents. This kind of investment in community energy projects, such as a Repowered Community, would support many aims of the Warm Homes Fund including: fuel poverty alleviation, lower energy bills, support for low-income households, energy efficiency upgrades, increased adoption of low carbon technologies, and green skills and supply chain development.

In the Repowered Community model, benefits are realised from the point of service delivery. Our first demonstrator in the London Borough of Newham expects to go live

in 2028 – delivering retrofit for and supplying reduced cost heat to approximately 200-250 households across 10 social housing blocks.

67. Is there a need for finance in community energy, and what are the barriers that prevent the private sector from filling it? Please also specifically consider how government financing can support building upgrades in the community sector.

Yes. Government finance is needed to scale the sector and the positive impacts that it delivers for communities - such as reduced energy costs, fuel poverty alleviation, and energy security at a time of increased global energy shocks and instability.

Available private finance comes with prohibitively high returns which undercut social value. Private finance also isn't funding innovation work, and Community Energy developers (like ourselves) operate in the innovation space. Operating at the frontier of innovation means that there isn't a strong track record as yet in Community Energy, because outcomes and returns are unproven. We also don't have the balance sheet to manage the risks associated with developing larger scale assets (e.g. heat networks) at a larger scale (e.g. across a local authority area).

The Warm Homes Fund needs to financially back a sector that has been a pioneer of decarbonisation in the UK. Finance needs to be flexible, affordable, and recognise social impact over returns – taking a triple bottom line (people, planet, profit) approach as opposed to a reductive profit-only stance. Acknowledging social and environmental impacts supports holistic interventions that can deliver enduring change and lasting social and economic benefit in communities. Prioritising economic returns supports a status quo in which fuel poverty has become widespread and private companies extract wealth from communities. Such a policy and financing environment is not conducive to delivering on the aims of the Warm Homes Fund.

68. How could government finance address this gap with repayable finance where government earns a return? Where possible, please describe how this model could work.

Repowering London operates in tandem with a sister organisation, Repowering Finance - an innovative financing pathway for installing urban solar energy. Repowering Finance is an asset-locked Community Benefit Society that was created to increase the speed and scale at which community-owned solar assets can be installed across London. It has agreed a rolling £1.5m loan facility with social impact lenders The Esmée Fairburn Foundation and Trust for London.

This loan facility acts as bridging finance, providing upfront capital to install solar assets on behalf of local community groups. These assets are then held in trust for the local group until it can raise the capital required to purchase the assets. The finance raised then replenishes

the £1.5m fund. Since its inception in 2024, Repowering Finance has facilitated installs at eleven sites across London totalling nearly 1MW.

Government finance could lend into organisations like Repowering Finance, increasing the size of the rolling fund and allowing the vehicle to offer upfront capital that helps de-risk larger scale community energy projects (such as networks integrating multiple decarbonisation technologies) in their early stages. This will help bring in senior debt (such as social impact investors, banks, and ESG) for long term financing to pay back into the revolving fund.