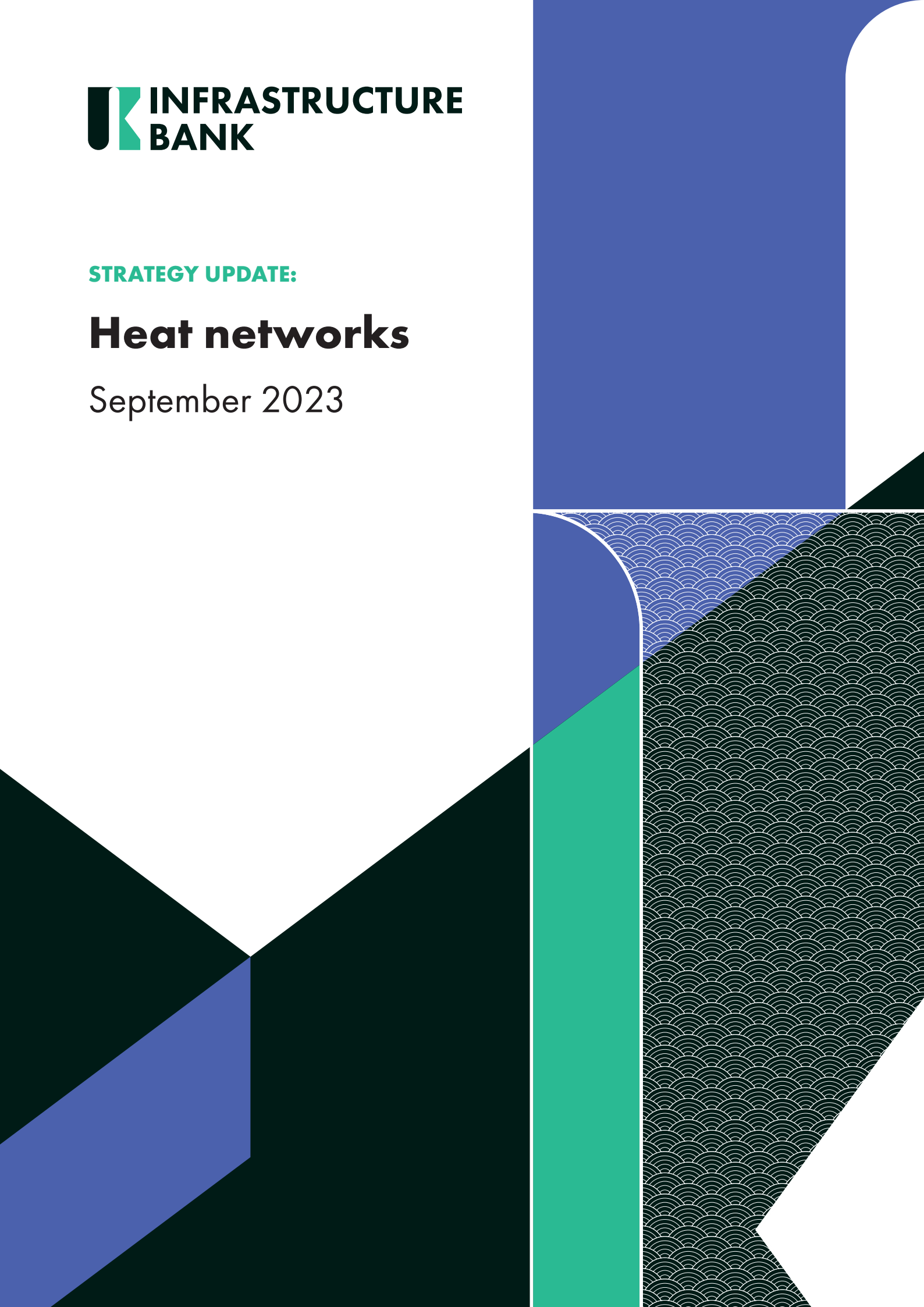




STRATEGY UPDATE:

# Heat networks

September 2023



# Sector summary: heat networks

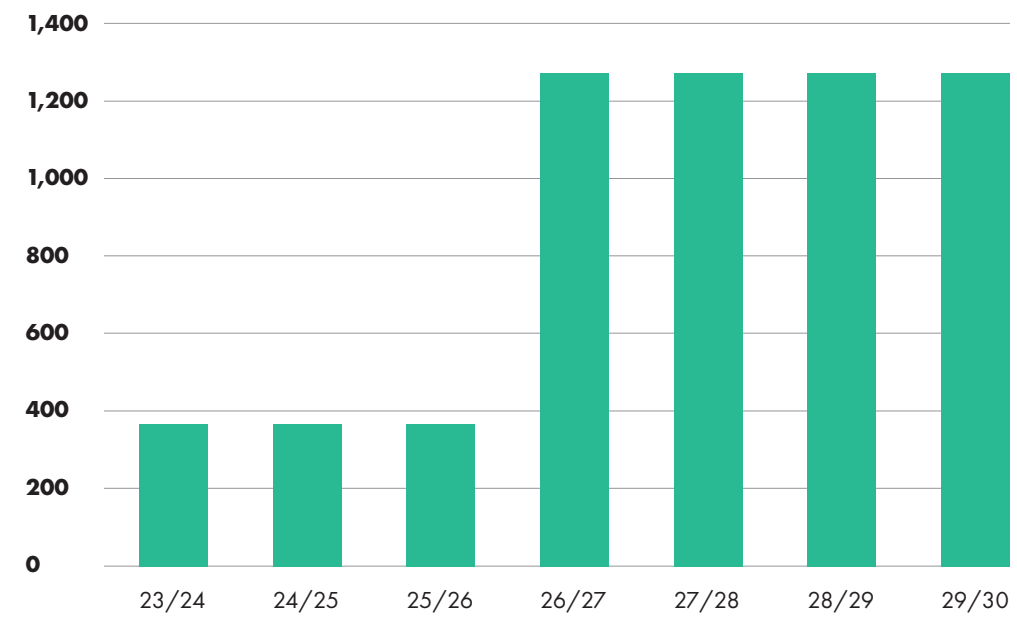
## Government ambition

- > **To increase the proportion of heat provided by heat networks from 3% today to 20% by 2050.** Increase heat network supply from 14TWh in 2020 to 35TWh in 2035, and to 80TWh in 2050.
- > **All areas suitable for heat networks in England to be identified and designated locally, with the introduction of zoning in 2025.**
- > **Ofgem will regulate the sector from 2025.** The soon-to-be-passed Energy Bill sets out Ofgem's new powers which will cover pricing, consumer protection, technical standards and a licensing regime.
- > **Create between 20,000 and 35,000 new jobs,** whilst supporting local regeneration and levelling up.

## Government funding

- > **The Green Heat Network Fund is a 3-year £288 million capital grant programme** open from March 2022 - March 2025. Funding can be drawn down through to 2027/28.
- > **In June 2022, the Heat Networks Industry Council estimated total investment potential to be at least £60-80 billion by 2050** to increase heat network provision to 20%.

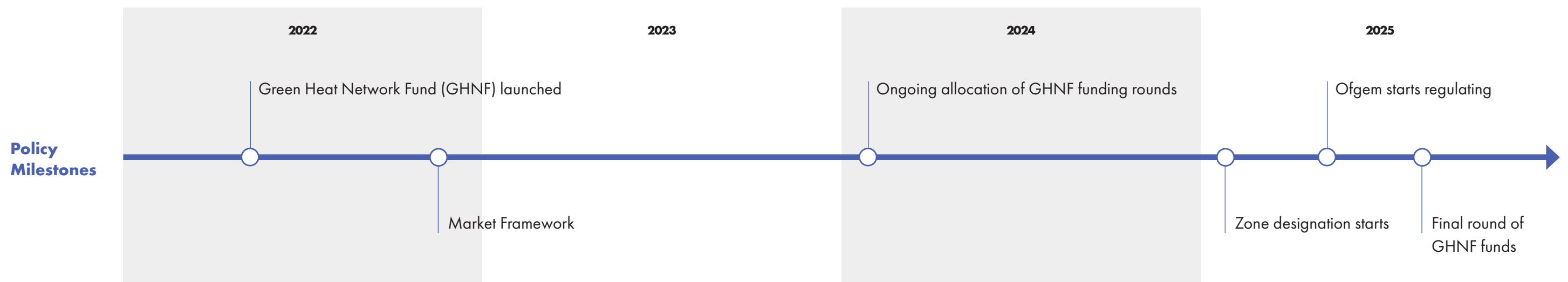
## Estimated investment need (£m)



### Data note:

Based off the published assumption that hitting the heat network deployment profile set out in the Net Zero strategy will cost £60 billion (lower end of the at least £60-£80 billion range), distributed over time based on rollout targets outlined in the Net Zero strategy.

## Investment roadmap (pinned to Green Heat Network Fund rounds)

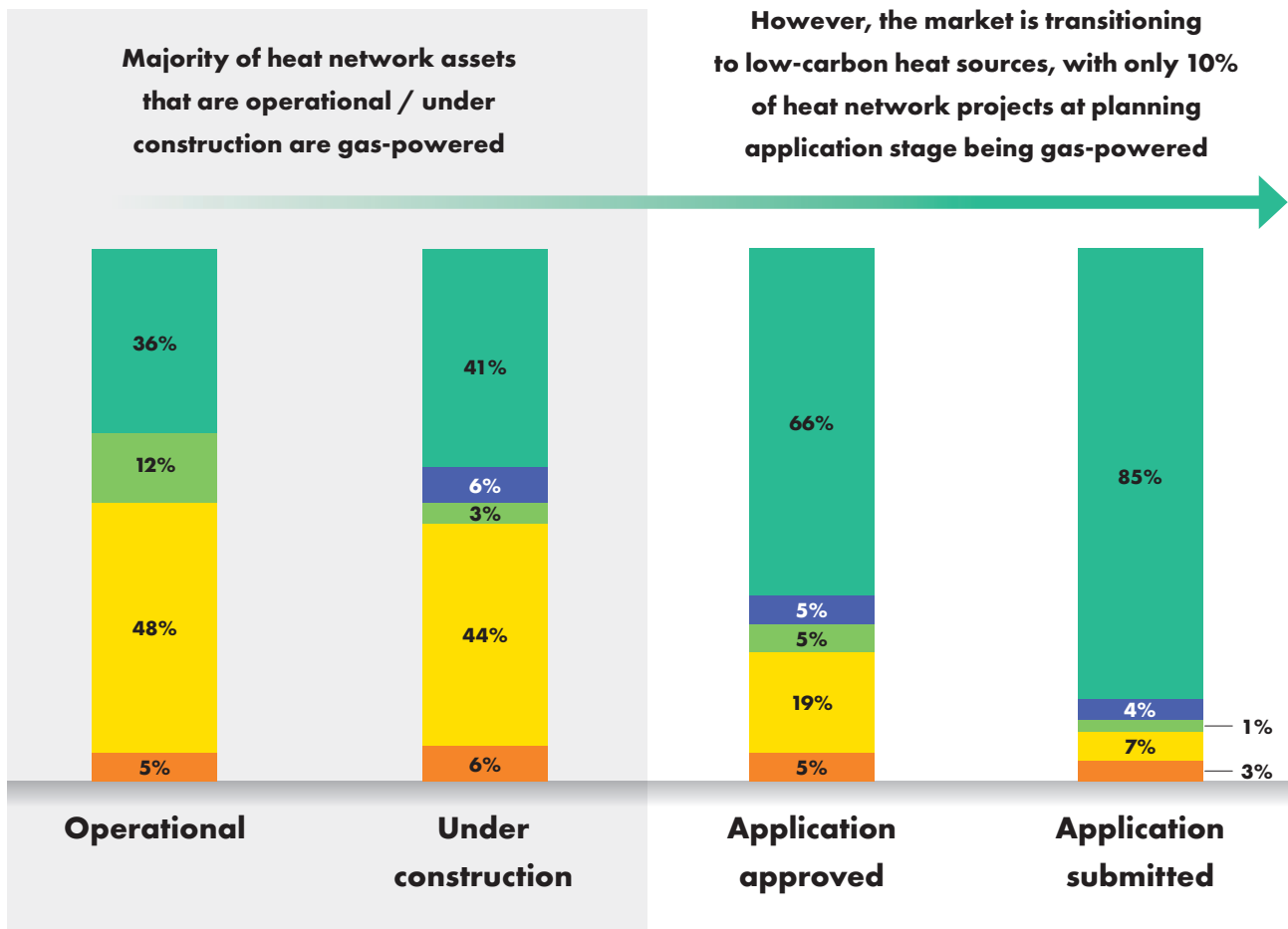


**Heat networks distribute heat or cooling from a large, centralised source and deliver it to multiple buildings. Most existing heat networks use a fossil fuel-based heat source. New heat networks generally use low-carbon heat sources and existing heat networks can be converted to use low-carbon sources.**

The Climate Change Committee (CCC) estimate heat networks will provide 35 TWh by 2035, and over 80 TWh of heat by 2050, roughly one fifth of the UK’s heat demand. Heat networks will play an important role in heat decarbonisation, especially in densely populated areas, and provide heat at a lower overall cost than many other low-carbon options.

The heat network market in the UK is nascent but expected to grow. The UK Government’s ambition is for the proportion of heat provided by heat networks to grow from 3% today to 20% by 2050. The following diagram outlines the heat sources of networks in the Heat Networks Planning Database, by delivery stage and how the Green Heat Network Fund is supporting the shift to low-carbon heat sources.

**Heat source of UK heat networks recently applying for planning, by development stage**



Gas boiler   Gas fired CHP   Biomass (inc. biofuel CHP)   Recovered heat   Heat pump

The Energy Bill 2023 is in the final stages of passing through Parliament and should receive Royal Assent later this year. The Bill will provide powers to regulate heat networks, empowering Ofgem to monitor pricing, safeguard consumers, set technical standards and introduce a licensing regime. The full regulatory framework for heat networks is likely to be in place by 2025. This will include zoning, where local authorities will designate heat network zones with key buildings required to connect to the heat network as anchor loads.

Local authorities will play a key role in heat networks by designating heat network zones, acting as project sponsors and investors, and being key heat off-takers through their estates. Local authority sponsored projects will be vital for proving the economic viability of heat network models with the aim being to develop accepted, replicable delivery models across the sector.

UK Government has set up an Advanced Zoning Programme (AZP) to test and inform live policy development on zoning, with ten cities aiming to have started construction of heat networks by the end of 2025, and a further ten under development. These projects will be zonal scale, with many being led, at least initially, by local authorities.

Existing heat networks have mostly benefited from grant funding. Early investment (up to FID) is generally funded by the public sector through grants or direct investment by local authorities, with construction funded from a mix of government grant, local authority investment and private industrial partners. Operations, when stabilised, should be funded from revenue generated by heat users.

The Green Heat Network Fund (GHNF), running from 2022 – 2025, issues grants to new networks and existing networks moving to a less carbon intensive heat source. The GHNF has restrictions on carbon intensity which mean successful projects, once scaled, will have equivalent carbon intensity to other low-carbon options such as heat pumps.

As the market scales, we expect to see most opportunities in establishing **new heat networks**, including both local authority-led and privately-led projects. Opportunities also exist in **existing networks**, where projects are either retrofitted to lower carbon heat sources or the network is expanded to reach more premises. This would reduce the carbon intensity of current gas-powered heating.

The market faces key challenges in scaling up, not all of which can be solved with our finance. We think we can help address problems with interim policy risk, revenue risk and challenging project economics.

## OUR ROLE SO FAR:



### **Bristol City Leap**

The City Leap Energy Partnership is a Joint Venture (JV) between Bristol City Council and Ameresco which aims to deliver around £500 million of low carbon energy infrastructure by 2028. The structure of the partnership includes the JV and a concession agreement. The JV can propose or respond to Council requested projects, develop associated business cases, and then deploy the vehicle to deliver projects.

We seconded one of our sector experts to support the City Leap project. Our role focused on assessing risk allocation, the deliverability of commercial models and supporting the development of concession agreements. By deploying our commercial and financial expertise, we helped the Council develop its thinking and governance arrangements to maximise the impact and benefit of the partnership between the public and private sector.



# Problems we want to address

## Policy risk

The regulatory framework for heat networks is expected to come into force in 2025. Recent progress on the Energy Bill and the developing pipeline, including the Advanced Zoning Programme, provide welcome clarity about the direction of travel for the sector. However, before 2025, there remains a lack of clarity about how, in practice, policy will address the off-take uncertainty and cost of heat which are deterring private investment in the sector.

## Revenue risk

Heat networks face significant revenue risks, particularly at the outset. Without heat zoning, developers face uncertainty about the proportion of consumers that will connect. Projects rely on 'anchor loads', large off-takers that can represent a large baseload of demand (c.30-40% of total network demand). However, even securing these anchor load clients can be challenging and their creditworthiness can be variable. Up-front connection costs can be significant and deter customers.

Once operational, large heat networks can provide lower per-unit heating costs, which make the likelihood of attracting customers and achieving scale higher. Once fully established at scale, heat networks function as a mature infrastructure asset class with stable long-term returns.

## Market immaturity

The small heat network market in the UK has limited the development of the supply chain, leading to increased costs for projects and competition for components and skills.

## Project economics

The problems above, combined with the impact of gas prices, make the project economics of heat networks challenging. The market remains dependent on grant funding to be viable for commercial investors.

# Our approach

We will help to scale-up heat networks projects across the UK, particularly supporting zonal-scale projects where our finance can increase project size and the number of expected connections.

Projects can be local authority-owned and operated, developed through a joint venture partnership between a local authority and a private partner, or fully privately led. Our local authority and private sector banking teams work closely to ensure we offer effective support to heat network projects across our lending and advisory products.

Our local authority advisory support is impartial and there is no obligation to request our financing support. However, we can add unique value by combining our advisory services with lending on projects where appropriate. For example, our advisory service can help local authorities understand how best to attract private finance to deliver private sector-led heat networks.

**Across all our private sector products, our indicative minimum ticket size is £25 million. For our local authority lending, our minimum ticket size is £5 million.**

Our approach to this sector is still developing. We are exploring the following solutions:

## > Connection charge facility

Connection charges currently vary significantly and depend on whether the asset connecting to the heat network is domestic or non-domestic. Upfront connection charges can act as a disincentive for customers to connect to heat networks and are a barrier to networks achieving sufficient scale to provide heat at competitive prices.

We want to test whether a facility reducing upfront connection charges could bring customers and mandated buildings onto networks more quickly and, in time, help networks build out to full scale. We will engage with market participants to develop this potential solution, including how it can support local authorities and private developers.

## > **Green Heat Network Fund collaboration**

Our existing collaboration with DESNZ enables local authorities applying for GHNF funding to automatically apply for our lending to meet any funding gap.

We want to deepen this collaboration to encourage local authorities to increase the scale and ambition of their heat networks. Going forward, we will engage with projects before they apply to GHNF to ensure the full potential take up of our offer is realised. We are working with projects which have secured grant funding through GHNF rounds 1 to 4 and represent an initial financing opportunity of around £70 million. We expect this to grow in subsequent rounds. Most of these projects are local authority led and we are engaging with these projects to help bring them to close.

As subsequent GHNF rounds are announced, we expect to see increased financing opportunities through our early engagement with projects. Our Local Authority Function is already engaging with projects in Leeds and Greater Manchester.

Our Local Authority Function is also working closely with stakeholders across the sector (DESNZ, Regional Net-Zero Hubs) to identify projects where we can provide advisory services and/or financing.

## > **Project gap funding**

We expect the initial phase of the most developed AZP projects to exceed £500 million, with eventual total capex requirements exceeding £2 billion, a significant proportion of which will need to come from private investment. We want to facilitate the rapid delivery of these strategically significant projects that will stimulate the growth of the wider pipeline.

Many projects face a gap between their IRR and the hurdle rate required by private investors due to challenging project economics. We are exploring options for how we can play a role in bridging this gap, crowding in private investment and bringing more projects to financial close. This could also incorporate a connection charge facility. We are working closely with DESNZ and project developers to understand if we can complement existing grant funding or make existing grant funds stretch further, in line with our investment principles.

## > **Construction / ramp-up guarantee or loan**

Policy risk and revenue risk have prevented commercial bank finance from being available during the construction and ramp-up phase of heat networks. To address this, we are considering piloting project guarantees or lending that are cancelled or repaid when a project hits financial ratios that make it bankable by commercial banks. We will engage with the market further to test the appetite and effectiveness of this potential solution.



# Get in touch

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