Social Housing Providers

Credit: Jay Clark

Overview

Social housing providers face growing pressure to decarbonise housing stock, reduce fuel poverty and improve long-term building performance, while continuing to provide affordable, reliable homes for residents.

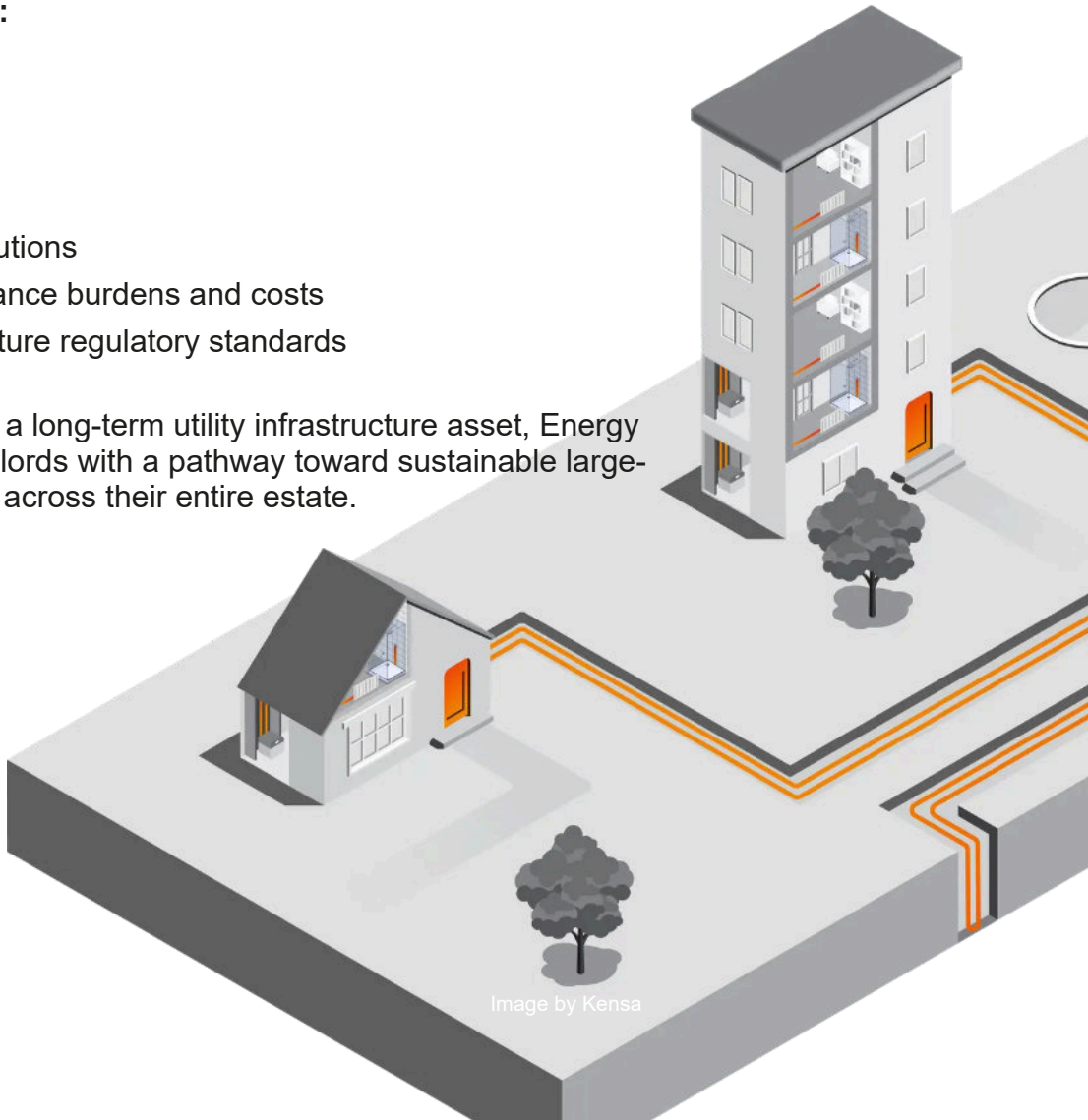
Energy Superloops provide a scalable low-carbon heating infrastructure solution designed to help social landlords meet these challenges. By combining ambient heat networks, data centre waste heat and networked ground source heat pumps, Energy Superloops deliver low-carbon heating at development and community scale.

Unlike conventional retrofit approaches, which often rely on standalone systems installed property by property, Energy Superloops create shared thermal infrastructure capable of serving entire neighborhoods and housing portfolios.

The approach is designed to:

- Reduce energy bills
- Lower carbon emissions
- Improve air quality
- Future-proof housing stock
- Provide flexible funding solutions
- Reduce long-term maintenance burdens and costs
- Support compliance with future regulatory standards

By treating low-carbon heat as a long-term utility infrastructure asset, Energy Superloops provide social landlords with a pathway toward sustainable large-scale housing decarbonisation across their entire estate.



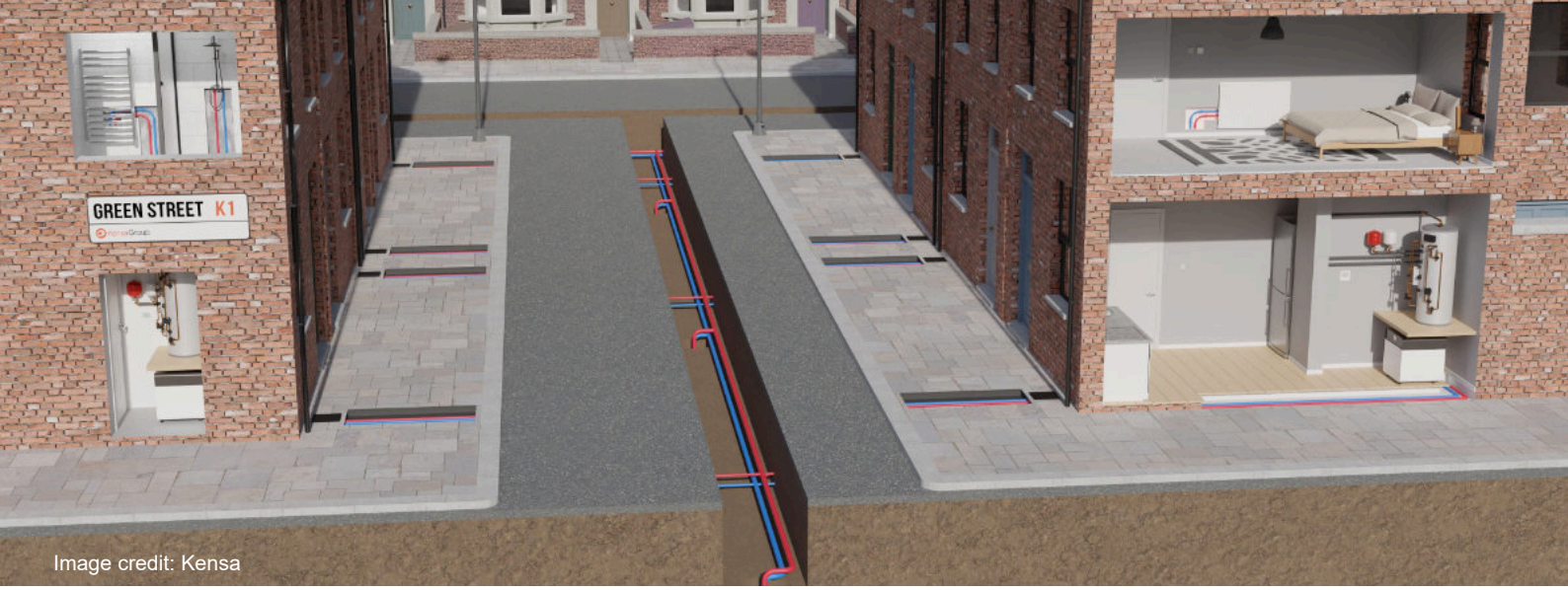


Image credit: Kensa

The Challenge

We know social housing providers face some of the most complex retrofit challenges within the built environment sector.

Many existing housing estates:

- Depend heavily on ageing gas infrastructure
- Contain difficult-to-retrofit building typologies
- Require significant energy efficiency improvements
- Experience high levels of fuel poverty
- Operate under constrained capital budgets

At the same time, regulatory and policy pressures are increasing.

The UK Government has launched consultations and policy initiatives aimed at:

- Improving EPC performance across social housing
- Decarbonising domestic heating
- Reducing fuel poverty
- Accelerating heat pump deployment
- Improving tenant wellbeing

Under emerging proposals, social housing stock in England is expected to achieve EPC Band C or equivalent by 2030.

Traditional retrofit approaches can be difficult to scale due to:

- High upfront installation costs
- Resident disruption
- Space constraints
- Grid reinforcement requirements
- Long-term maintenance burdens

The challenge is therefore not simply replacing boilers, but delivering affordable, scalable and socially acceptable low-carbon infrastructure across large housing portfolios.


DataGlow Energy

The Solution

Energy Superloops provide a community-scale retrofit solution built around shared ambient thermal infrastructure.

The system combines:

- Data centre waste heat recovery
- Borehole thermal storage
- Ambient heat distribution networks
- Individual Kensa ground source heat pumps within each home
- New or existing renewable energy assets to power the system

Rather than requiring every property to install its own ground array, the network distributes low-grade thermal energy across entire estates and communities.

Each home is fitted with a ground source heat pump connected to the shared network. The heat pump upgrades low-temperature energy from the ambient loop for use in space heating and domestic hot water.

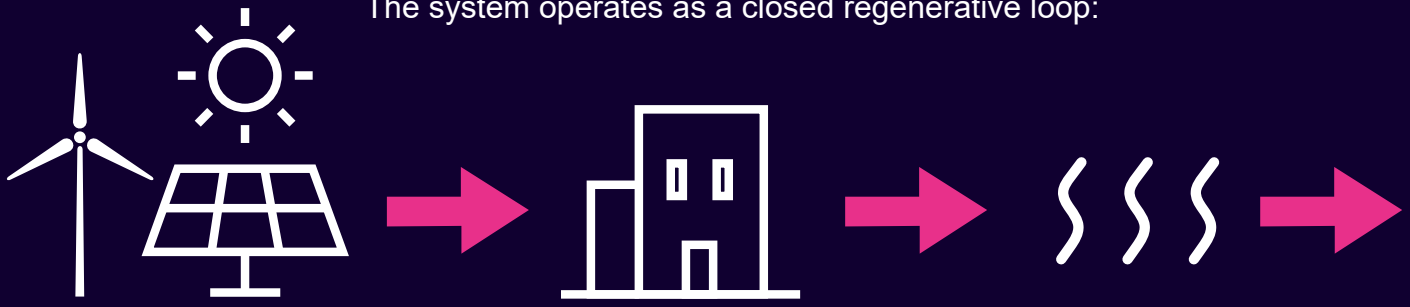

Image credit: Kensa

This distributed approach delivers many of the advantages of traditional ground source systems while significantly increasing the performance of the heating system due to the provision of preheated water and reducing the barriers associated with individual installations.

The system also allows residents to have control of their own heating and choose their own electricity supplier, avoiding issues associated with traditional district heating systems.

How It Works

The system operates as a closed regenerative loop:



Power generation

Local renewable energy and the national grid powers Superloop's data centre

1

Data centre

Computing operations generate recoverable waste heat 24/7

2

Heat recovery

Waste heat is used to warm water circulated through Superloop's pipes

3

Home heating

Pre-warmed water moves through your new ground source heat pump, boosting efficiency and cutting bills and emissions

4

Closed loop

Cooled water returns to our data centre to be reheated - cycle repeats endlessly

5

Energy Superloop

The data centre acts as a constant source of recoverable waste heat. In conventional facilities, this low-grade heat would be expelled into the atmosphere through cooling systems. Within an Energy Superloop, it is captured and transferred 24/7 into the heat network, improving system efficiency and reducing wasted energy.

As properties connect to the network, individual ground source heat pumps are installed within each home. These systems extract low-temperature energy from the ambient heat network and upgrade it to temperatures suitable for heating and hot water - making efficient source heat pumps even more so.

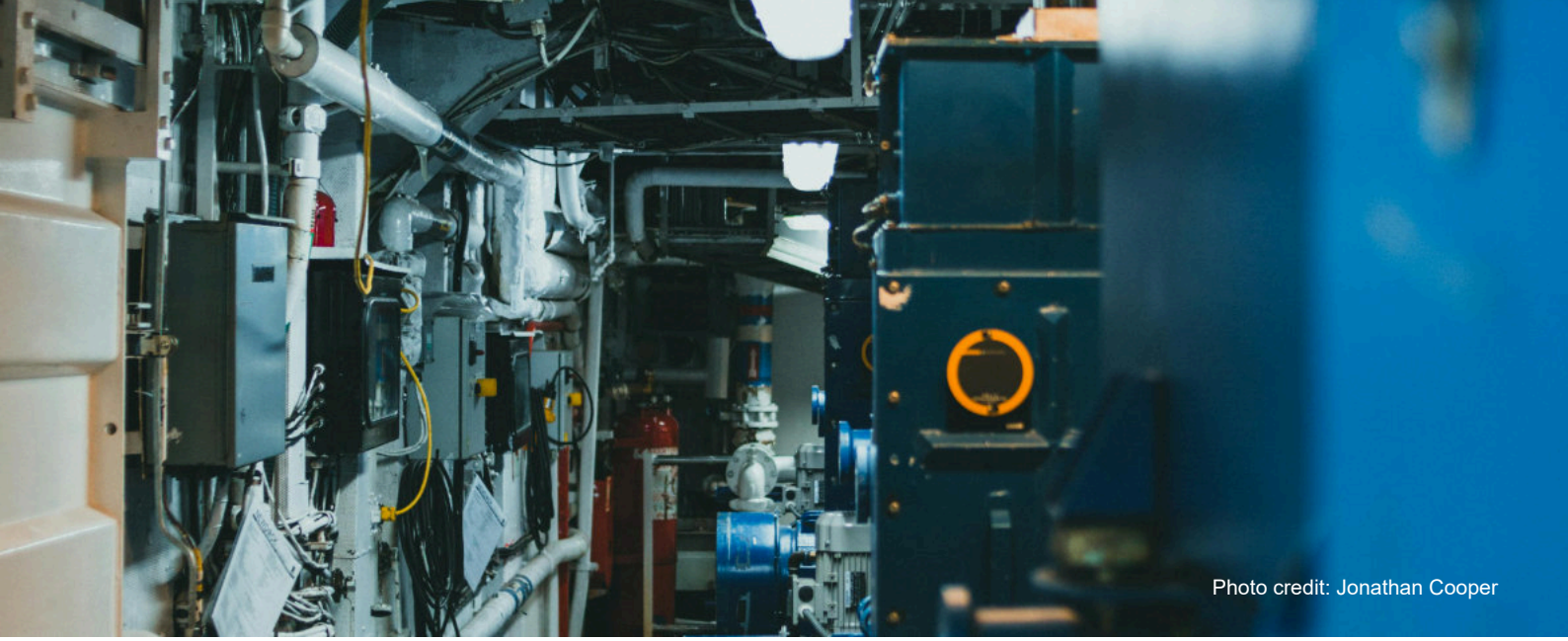


Photo credit: Jonathan Cooper

Unlike traditional district heating systems:

- Residents maintain control of their own heating system
- Each property remains connected to its own electricity supply
- Residents can choose their own electricity tariff and supplier
- There is no requirement for complex communal heat billing for domestic properties

The system operates continuously as a closedl loop:

- Heat is recovered from the data centre
- Thermal energy circulates through the ambient network
- Heat pumps upgrade energy within each property
- Cooler water returns to the network for reheating.
- The borehole array balances the system, increasing efficiency and ensuring constant heat provision.

This creates a highly efficient and scalable heating system capable of serving large housing estates and communities.

Infrastructure & Resilience

Energy Superloops are designed as long-life infrastructure assets capable of supporting housing stock over multiple decades.

Key resilience benefits include:

Shared borehole thermal storage providing continuity of supply

Distributed infrastructure reducing single-point failure risk

Underground infrastructure lifespan of up to 100 years

Modular expansion capability for phased retrofit programmes

Because the network operates at low ambient temperatures, distribution losses are significantly lower than conventional high-temperature district heating systems.

This infrastructure-led approach makes Energy Superloops particularly well suited to estate-wide retrofit and long-term housing portfolio decarbonisation. Allowing the network to be built ahead of time with residents being connected to it as and when able within the ongoing maintainence cycle.

Picture credit: Oladapo

Picture credit: Altaf Shah

Delivery

Energy Superloops are designed to support affordable, scalable retrofit delivery. We are backed by major green infrastructure investment from Octopus Energy Generation, helping reduce upfront barriers to deployment.

Delivery can include:

- Feasibility studies
- Estate heat mapping
- Tenant engagement
- Planning support
- Network design
- Borehole installation
- Heat pump installation
- Long-term operation and maintenance

Potential delivery structures include:

- Fully funded turnkey delivery
- Partnership delivery models
- Phased rollout programmes

The approach enables housing providers to pursue retrofit at estate or community scale rather than relying solely on individual property upgrades.

Planning & Policy Alignment

Energy Superloops align strongly with current and emerging UK housing and decarbonisation policy.

Key policy drivers include:

- The Warm Homes Plan
- EPC reform
- Net zero commitments
- MEES proposals for social housing
- Fuel poverty reduction strategies

The Warm Homes Plan announced substantial funding support for:

- Heat pump deployment
- Low-carbon retrofit
- Energy efficiency improvements
- Low-interest retrofit finance

Energy Superloops can help housing providers prepare for future regulatory requirements while improving long-term housing performance.

Benefits for Housing Providers

Energy Superloops deliver multiple strategic and operational benefits for landlords:

- Reduced carbon emissions across housing portfolios
- Improved EPC performance
- Lower long-term maintenance requirements
- Long-life infrastructure investment
- Scalable estate-wide retrofit capability
- Support for long-term asset management strategies

The approach also enables housing providers to demonstrate leadership in low-carbon infrastructure delivery and tenant-focused decarbonisation.

Additional Capabilities

Energy Superloops can support wider estate infrastructure improvements, including:

- Ultra-fast fibre broadband deployment
- Smart energy integration
- Community energy infrastructure
- Future renewable integration

The network can also connect:

- Community centres
- Schools
- Leisure facilities
- Mixed-use developments
- Commercial units

Photo credit: Octopus Energy

Case Studies & Precedents

Kensa, a UK based Ground Source Heat Pump manufacturer, is a Superloop project partner. They are experts in large scale networked heat pump projects (new buid and retrofit) and have decades of experience working with the social housing sector.

Ashton Rise, Bristol

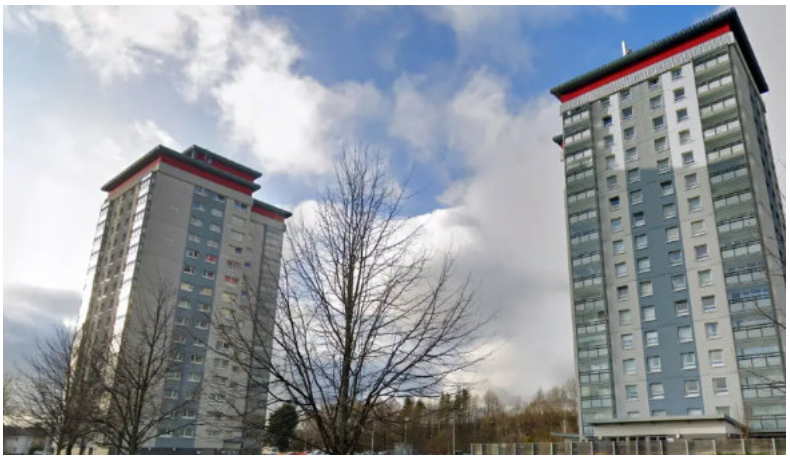
133 new energy-efficient homes comprising of 2, 3 and 4-bedroom houses and 1 and 2-bed apartments for Bristol City Council by Willmott Dixon. Read more about the project here.

Sutton Dwellings, London

With the help of Kensa and networked heat pumps, Clarion Housing Group has refurbished four blocks of socially rented flats, each over 100 years old, in their Sutton Dwellings estate in Chelsea – an area containing some of the UK's most expensive real estate – whilst honouring its heritage at the same time.

Gallowhill, Paisley

In a landmark move to decarbonise heat in Scottish social housing, Renfrewshire Council has partnered with Kensa to deliver the largest network heat pump system in Scotland. This pioneering project will see the replacement of ageing gas infrastructure in two high-rise tower blocks.



These projects demonstrate how networked heat pumps can successfully decarbonise large residential estates while reducing tenant's energy bills.

Why It Matters

Heating remains one of the largest contributors to UK carbon emissions, and social housing providers play a critical role in delivering large-scale decarbonisation.

Energy Superloops provide a practical pathway to:

- Reduce emissions at scale
- Improve tenant wellbeing
- Lower fuel poverty
- Future-proof housing stock
- Deliver long-life infrastructure investment

The approach also demonstrates how waste heat from digital infrastructure can be transformed into a valuable community resource.

Rather than treating retrofit as a series of isolated property upgrades, Energy Superloops create shared infrastructure capable of transforming entire estates and communities.

Next Steps

Successful Energy Superloop retrofit projects begin with early-stage collaboration and feasibility assessment.

Initial project stages typically include:

- Estate heat demand analysis
- Infrastructure assessment
- Community and tenant engagement
- Planning review
- Commercial modelling
- Funding and delivery strategy development

Housing providers, councils and social landlords interested in large-scale low-carbon retrofit are encouraged to engage directly or via their agents early to explore suitability and delivery opportunities.

Contact us to discuss how an Energy Superloop could support your housing portfolio. Get in touch via info@dataglow.energy