

Riverside Dene, Newcastle Upon Tyne

Optimisation Study



Riverside Dene in the Scotswood area of Newcastle upon Tyne lies about one mile west of the city centre. Its district heat network serves six residential tower blocks, including the larger Cruddas Park block containing the energy centre, a ground floor shopping precinct, and several commercial units. Each block has its own heat substation. One block is privately owned, while the others are social housing.

The network is owned by Newcastle City Council and operated by Blue Leaf Energy Services Ltd, who took over from Vital Energi Ltd in December 2025. The Council manages all billing and customer services. Heat is supplied by two 1.2 MW gas boilers and 1.6 MW and 700 kW biomass boilers. In August 2025, HNES awarded £22,500 for a Heat Network Optimisation Study, delivered by Reheat (Renewable Technologies) Ltd between November 2025 and March 2026.

Summary	
Network name	Riverside Dene
Network owner / operator	Newcastle City Council
Location	Newcastle Upon Tyne
Number of residential / commercial customers	541 residential properties and one commercial customer
Heat source	Gas Boiler & Biomass
Total funding awarded	£22,500
Optimisation Study delivered by	Reheat (Renewable Technologies) Ltd
Top three recommendations for improvement	Upgrade controls and install automatic remote monitoring. Improve heat metering strategy and deployment (customer and network bulk meters).

Overview of heat network

The Riverside Dene heat network in Scotswood supplies heat to 541 homes across six residential towers—one privately owned and five managed by Newcastle City Council—as well as a Newcastle College teaching facility. The system, built between 2009 and 2010, is powered by three gas boilers and a biomass boiler, but suffers from ageing infrastructure, non-functional meters, and limited remote monitoring.

Details of why the project was needed

After 15 years in operation, the network is experiencing major performance issues, including high operating and return temperatures, poor efficiency, outdated controls, hydraulic imbalances, and water quality problems. An optimisation study confirmed that inadequate control and monitoring, combined with hydraulic inefficiencies, are driving excessive energy use, elevated heat losses, and a higher risk of outages.

Recommendations proposed

The study proposes a structured package of improvements covering stabilisation, monitoring, quick wins, and long-term optimisation. Key recommendations include replacing obsolete control modules, installing a new remote monitoring system, upgrading all heat meters, improving flat-level heating systems, addressing hydraulic inefficiencies, and implementing new water treatment measures. These actions were assessed for cost, disruption, and carbon impact, and will support future HNES capital funding applications.

Projected benefits realised from proposed measures

Projected benefits include more accurate billing, better performance tracking, reduced heat losses, lower return temperatures, improved system stability, and longer equipment life. Collectively, the measures align with HNES objectives by improving efficiency, cutting carbon emissions, and enhancing customer experience.

Projected benefits realised from actioning proposed measures

The consultancy work has provided clear evidence base for investment planning, helping the council coordinate works and prepare for HNTAS compliance. For residents, the improvements will deliver a more reliable, efficient system with reduced overheating, fewer outages, and more transparent billing.

Benefits to network customers

Customers will gain a more reliable and efficient system with better control and reduction of overheating. Improved system efficiency and lower operating temperatures will reduce energy consumption and overall running costs, with benefits passed on to customers where possible. Improved monitoring and control will reduce the frequency of any outages and provide transparent billing.

Next steps

Next steps include confirming the scope and phasing of priority works, beginning with heat

meter installation, and preparing a capital funding bid. Subject to approvals, detailed design and a phased delivery plan will follow to minimise disruption while improving performance.

Quote from Newcastle City Council

“The optimisation study has given us the clear evidence needed to plan targeted investment at Riverside Dene. Its recommendations will support a more reliable, efficient network and fairer billing for residents, creating a system that is easier to manage and more affordable in the long term.”