HEAT NETWORK EFFICIENCY SCHEME

University of Chichester

Optimisation Study

Summary	
Network name	University of Chichester (Bishop Otter Campus)
Network owner / operator	University of Chichester
Location	Chichester, West Sussex
Number of residential / commercial customers	Commercial/educational campus
Heat source	Gas
Total funding awarded	£24,000
Optimisation Study delivered by	Dr Joel Hamilton (Translating Energy) / James Blanksby (GESTI)
Top three recommendations for improvement	• Commission urgent leak detection and repair, and implement chemical water treatment programme • Implement a full BMS controls overhaul including optimised start and water meter integration • Establish a PPM maintenance programme

Overview of heat network

The University of Chichester (Bishop Otter Campus) is served by a district-style heat network believed to date pre 1980s, with evidence of significant alterations and adaptations over the intervening decades. Heat is generated in a central boiler house by three gas-fired, non-condensing cast iron shell boilers with a combined output of 2,150 kW.

The network distributes heat across at least three zones serving the kitchen and restaurant areas (Zone 1), the Registry, University House and Cloisters buildings (Zone 2), and the Mitre Theatre. Domestic hot water is generated via calorifiers in the main plant room. The BMS is a Trend IQ4 system with weather compensation active across both heating zones. A site survey was conducted on 18 March 2026 by Dr Joel Hamilton of Translating Energy and James Blanksby of GESTI.

Details of why the project was needed

The heat network is experiencing significant operational inefficiencies and infrastructure concerns that present risks to system reliability, energy efficiency, and regulatory compliance. The three boilers, manufactured in 2002 and 2003, have reached or exceeded their expected economic lifespan of 20–25 years. Return temperatures above 70°C were recorded at the time of survey, indicating that the boilers are operating in a mode that can cause cycling and the network is not distributing heat effectively. Boiler 1 was found to be intermittently locking out, requiring manual reset by the facilities manager.

The most critical finding of the survey is an extremely high rate of make-up water entering the heating system. Approximately 500 litres of make-up water per day was recorded over the survey period, through a combination of the automatic pressurisation unit and daily manual top-up. This rate of water loss is indicative of significant active leaks within the distribution network. The system water was found to be heavily contaminated with debris and sludge, and no records of inhibitor dosing or PPM maintenance visits could be confirmed at the time of survey. It should be noted that inhibitor dosing could cause environmental damage if conducted prior to the leak being repaired. The network recently experienced severe blockages during unplanned maintenance resulting from failed pumps and valves, all as a result of poor water quality.

Evidence of cold water dead legs was identified in parts of the building, presenting a potential Legionella risk. No Legionella management logs were sighted during the survey. BMS controls concerns include an absence of optimised start, a significant Zone 1 / Zone 2 control valve imbalance (3.5% vs 80% open), and manual position overrides set to 100% on both zone valves. Significant thermal comfort complaints were also reported by building users.

Recommendations proposed by the Optimisation Study

Dr Joel Hamilton and James Blanksby, the appointed heat network consultants from Translating Energy and GESTI respectively, presented three costed investment options:

- **Option 1 – Stabilise:** Leak detection and repair, full system clean and water quality

management, controls overhaul including optimised start and water meter integration, water preconditioning, and technical QA support.

- **Option 2 – Control:** All of Option 1 measures plus a full metering package, local controls upgrade, and seasonal commissioning and QA. This is the recommended course of action.

- **Option 3 – Network and Emitter Replacement:** All of Option 2 measures plus internal network replacement (single to twin-pipe), radiator replacement, transmission network replacement, plant room items, and acceptance testing across all buildings.

Projected benefits realised from actioning proposed measures

Implementing Option 2 (Control) will stabilise the network, address the most critical safety and compliance risks, and deliver estimated annual energy savings of approximately £4,340. The combined programme is forecast to achieve a simple payback of 19.5 years after grant. Addressing the system's active leaks will prevent dilution of corrosion inhibitor (when used), reduce accelerated corrosion of boilers, pumps, and pipework, and extend the operational life of recently replaced equipment. Improvements to the BMS, including optimised start and water meter integration, will reduce unnecessary operating hours and enable ongoing monitoring of system water losses. The overall gas consumption of the network is expected to reduce dramatically between 5% to 15% depending on the measures taken forward.

Benefits to network customers

Addressing the system's leaks and water quality will significantly reduce the risk of boiler and pump failure, protecting the continuity of heating and hot water supply to catering operations and across all campus buildings. Improvements to BMS controls and hydraulic balancing will reduce the overheating experienced in some rooms and the cold conditions in others, such as the Nutrition Lab (H137), reducing reliance on supplementary electric heaters. Formalising the Legionella management programme will protect building occupants and support the University in meeting its legal obligations under HSE Approved Code of Practice L8. Implementation of metering will provide the University with accurate data on energy consumption and system performance, supporting cost control and future capital planning.

Next steps

The University of Chichester should confirm HNES grant eligibility with DESNZ prior to application (noting that the HNES scheme has historically targeted residential heat networks and eligibility for a commercial/educational campus should be verified). Contractor quotations should be obtained for capital works under each option before investment decisions are made.

The University should also obtain full gas and electricity billing data and sub-metering data to refine the energy analysis and payback calculations. A comprehensive distribution network condition survey should be commissioned to map pipework routes and determine the full extent of insulation deficiencies and ageing pipework requiring replacement.