

HEATWEB

CASE STUDY · HEAT NETWORKS & COMMERCIAL

Birmingham & Southampton City Wide HNES Studies

Efficiency across large urban heat networks

AT A GLANCE

LOCATION
Birmingham and Southampton

SECTOR
City-wide urban district heating

PROGRAMME
Heat Network Efficiency Scheme (HNES)

CLIENT SITES
Five in each city: conference centres, libraries, civic offices, retail buildings and hotels

HEATWEB SERVICES
Monitoring, BMS data access, analysis and recommendations

Key learnings from the first successful city-wide Heat Network Efficiency Scheme studies: how the technical practices, operating procedures and client systems connected to a large urban district heating network affect its efficiency, and how shared data gets clients and the operator working together.

The challenge

Urban heat networks are large and complex, with connections to clients of every type. The studies set out to understand the general level of quality across the network and to improve technical practices, operating procedures and the interaction between operator and clients.

Age was a significant challenge. Many client systems were never designed for modern heat network efficiency, and fixed flow controls that maintain heat regardless of return temperature are common. Upgrades made without technical guidance do not necessarily improve efficiency.

What we did

- Examined five distinct client sites in each city, so the optimisation measures apply to every client category on the network.
- Logged outdated practices, each client's previous attempts to upgrade and the technical guidance that had been available to them.
- Installed monitoring or unlocked BMS data to capture flow rates, return temperatures, differential pressures and network pump control.
- Analysed air handling, temperature control, alarming and network management, putting recommendations that affect the whole network first.

What we found

- Heat meter data is used for billing, but flow rates and return temperatures are not monitored or alarmed, and contractual return temperature limits were never enforced.
- Client and operator BMS systems are designed and run in isolation, and almost none show return temperatures or flow rates, so clients cannot spot bypass flow or track their own optimisation.
- Air handling units serving both heating and cooling often heat and cool at once or oscillate between the two: easily remedied once identified, but with no visibility the waste can persist for years.



Plate heat exchangers in a substation on the Birmingham network.

2
cities studied: Birmingham and Southampton

5
distinct client sites examined in each city

The outcome

- Comprehensive data, visibility and KPIs, with a planned set of surveys and minor works, set a realistic route to upgrades that has a real effect on performance.
- Easy-to-understand dashboards showing the inefficiencies and potential savings were key to the buy-in of building owners and facility managers.
- With critical heat network data in hand, incremental changes at each connection add up to a significant improvement across the whole city network.

About Heatweb. Heatweb Solutions is a UK provider of engineering support for heat networks and commercial HVAC: monitoring, fault diagnostics, technical compliance, optimisation, commissioning and maintenance.

Talk to an engineer

The full case study: www.heatweb.co.uk/blog/case-study/city-wide-hnes-study/

0345 241 1441
enquiries@heatweb.co.uk
www.heatweb.co.uk