

Southbank Tower, SSE

The Southbank Tower project, a collaboration between Scottish & Southern Energy (SSE) and FairHeat, aimed to optimise the heat network serving Southbank Tower, a mixed-use development in Southwark. This network provided heating and hot water to 191 dwellings, alongside commercial, office, and retail connections. Recognising the inefficiencies of the existing system, SSE engaged FairHeat to support with the HNES Demonstrator application and to conduct an Optimisation Study, leading to innovative solutions for enhanced efficiency and sustainability.

Challenges and Background

Southbank Tower's heat network faced multiple challenges—high heat losses of around 598W/dwelling due to bypasses and excessive plate heat exchangers (PHEs). These issues resulted in undesirable high temperatures, elevated flow rates, increased pump electricity consumption, equipment wear, and compromised boiler efficiency.

FairHeat's Optimisation Study and HNES Demonstrator

In response to these issues, FairHeat proposed a comprehensive set of solutions under three distinct work packages (WP).

- WP1 aimed to address hydraulic issues, recommission end units, and eliminate dwelling PHE skids for commercial HIUs. This resulted in a 29% reduction in average heat loss, down to 371W/dwelling.
- WP2 built upon WP1 by removing dwelling cylinders and introducing direct HIUs in each dwelling. These combined measures led to a 39% reduction in average heat loss, down to 246W/dwelling.
- WP3 represented the most comprehensive solution, involving the removal of most PHEs and the installation of new risers to enhance efficiency. This approach achieved an impressive 48% reduction in average heat loss, down to 178W/dwelling.

Outcomes

The Optimisation Study identified several opportunities, offering a range of solutions to significantly reduce heat losses, improve overall efficiency, and cut energy consumption. SSE is now able to leverage the insights from this study to implement the identified work packages and revolutionise the performance of the Southbank Tower heat network.

“SSE have engaged with Fairheat to carry out an optimisation study in our South Bank Tower District Heating scheme under the HNES funding. That scheme had many inherent design defects that made its operation and economics challenging for us, as an ESCo. Fairheat have been extremely professional throughout the whole process and have identified several energy efficiency measures which were clearly ranked in terms of difficulty and had also provided transparent financial benefits for each. This optimisation study has proved very helpful and we are now in the process of applying some of this measures on site.” – Sotirios Kyriakis, Mechanical Engineer, SSE Energy Solutions