SECURE

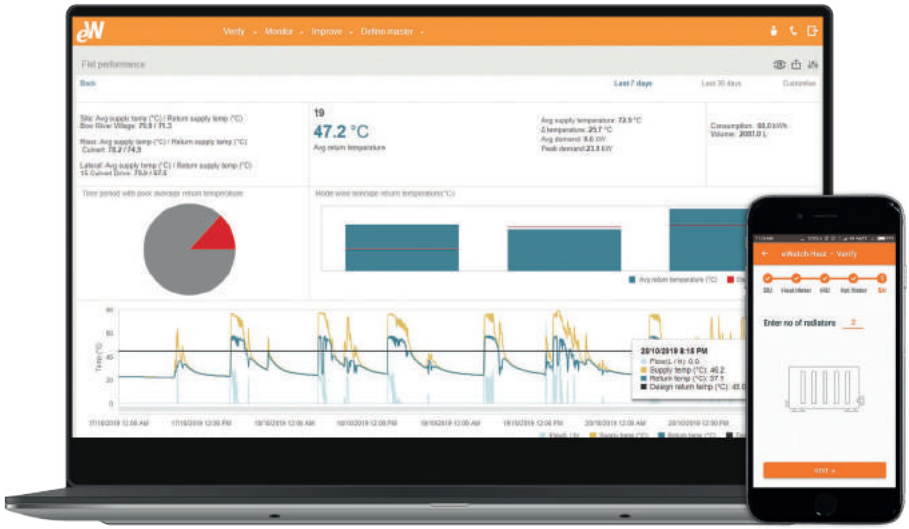
Performance management
for heat networks

Lower running costs

Reduce carbon emissions

Mitigate fuel poverty

eWatch heat



What are the drivers for optimising your heat network?

Networked heating can reduce energy costs for users and service providers and helps to mitigate fuel poverty. More efficient heating networks can also significantly reduce the carbon footprint of urban centres. However, potential for inefficiency is inherent at multiple points in every heat network, and safeguards to prevent sub-optimal operation are recommended.

eWatch heat service is part of an integrated solution to optimise the efficiency of heat networks and reap maximum benefit for all.

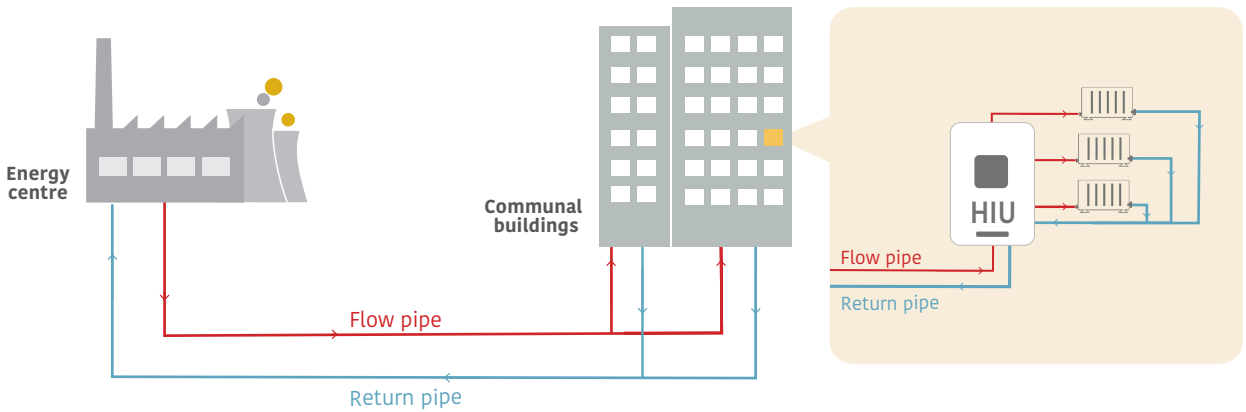
With the pragmatic application of technology, eWatch heat Service simplifies the task and helps lower the cost of delivering efficient, low-carbon heating to all those connected to your network.

Government regulations and funding* support the establishment and maintenance of heat networks that optimise energy use and serve customers.

eWatch heat service makes compliance with government legislation easy and helps you achieve Competition and Market Authority recommendations.

***The Heat Metering and Billings Regulation 2014; CIBSE 1.2 code of practice for the construction and commissioning of new buildings; The Heat Networks Investment Project (HNIP) is a government funding programme providing £320 million 'gap funding' for heat network projects in England and Wales. By 2021, it's expected to support up to 200 projects and "to lever in up to £2 billion of wider investment, reducing bills, cutting carbon and forming a key part of wider urban regeneration".**

What is an optimal heat network?



Usually heat is transferred between a network and each dwelling connected to it, via a Heat Interface Unit (HIU). Once heat has flowed through each dwelling or building, it is returned to an energy centre via a network of return pipes.

For optimal efficiency, we need to achieve the maximum temperature difference between heat supplied to each household and the return temperatures (ΔT or Delta T).

- Inefficient heat networks are typified by high return temperatures to the energy centre.
- If hot water comes back to the energy centre only 1-2°C cooler, energy is being wasted producing and pumping it.

How can heat networks be optimised?

Appropriate heat interface unit commissioning

It is essential that guidelines during commissioning are easy to follow and prevent inappropriate flow rates within properties that lead to high return temperatures and supply interruptions.

Bypasses in the network

Bypass valves help meet the demand, whilst keeping the whole network at minimum temperature levels, but sometimes they are the source of inappropriate flow rates that cause significant inefficiencies.

Balanced radiators

Optimising efficiency rests on the premise that multiple tertiary networks are being operated appropriately. Customers need to be well-informed about how to maintain appropriately balanced radiators in their premise.

Well-designed networks

Appropriately sized pipes and pumps, running at capacity, along with adequate insulation and control are critical. Networks lacking this focus have observed heat losses of 50% (and higher).

eWatch heat service: optimise your heat network

Design, install and commission appropriately

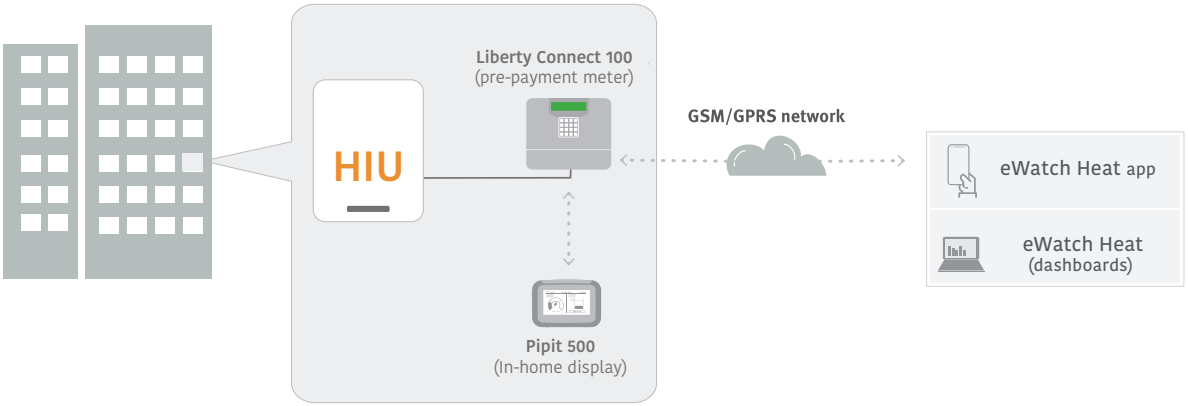
Measure and review performance data

Service and maintain proactively

Using remote technology and data analysis, the solution gives service providers peace of mind that all their customers are being served and government regulations* whilst lowering their operating and maintenance costs.

- **Design, install and commission appropriately**: By following a series of simple steps, all properties can be verified to the same standard; commissioning and verification reports confirm each property is connected appropriately.
- **Measure and review performance:** by monitoring individual HIUs, risers and plant rooms regularly, the solution highlights any persistent efficiencies
- **Act on the data and address inefficiencies proactively:** with a suitably scoped service and maintenance regime, performance can be maximised, whilst operating costs can be lowered.

*Conform to heat network regulations (COP, CMA & Heat Trust). HNIP funding is dependent on COP compliance.



eWatch heat service captures and analyses data to generate graphical reports about individual HIUs and overall network performance. Poorly performing properties that need attention are identified easily.

The service considers three key aspects:

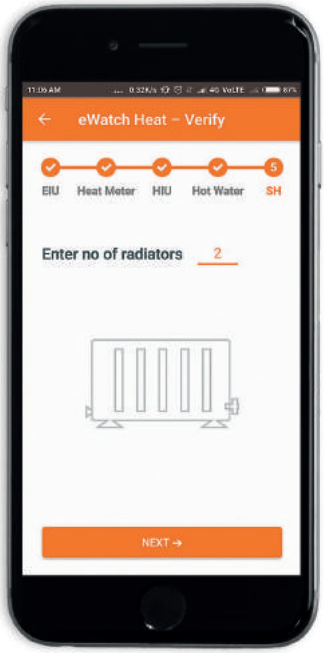
- **Verification** of appropriate commission;
- **Monitoring** on-going performance;
- **Improving** through proactive service and maintenance.

Ongoing monitoring of the network and follow-up action as required, helps keep costs low for both operator and resident, and ensures reliable, adequate heat supply reaches all those connected, including tenants vulnerable to fuel poverty.

Verify system performance

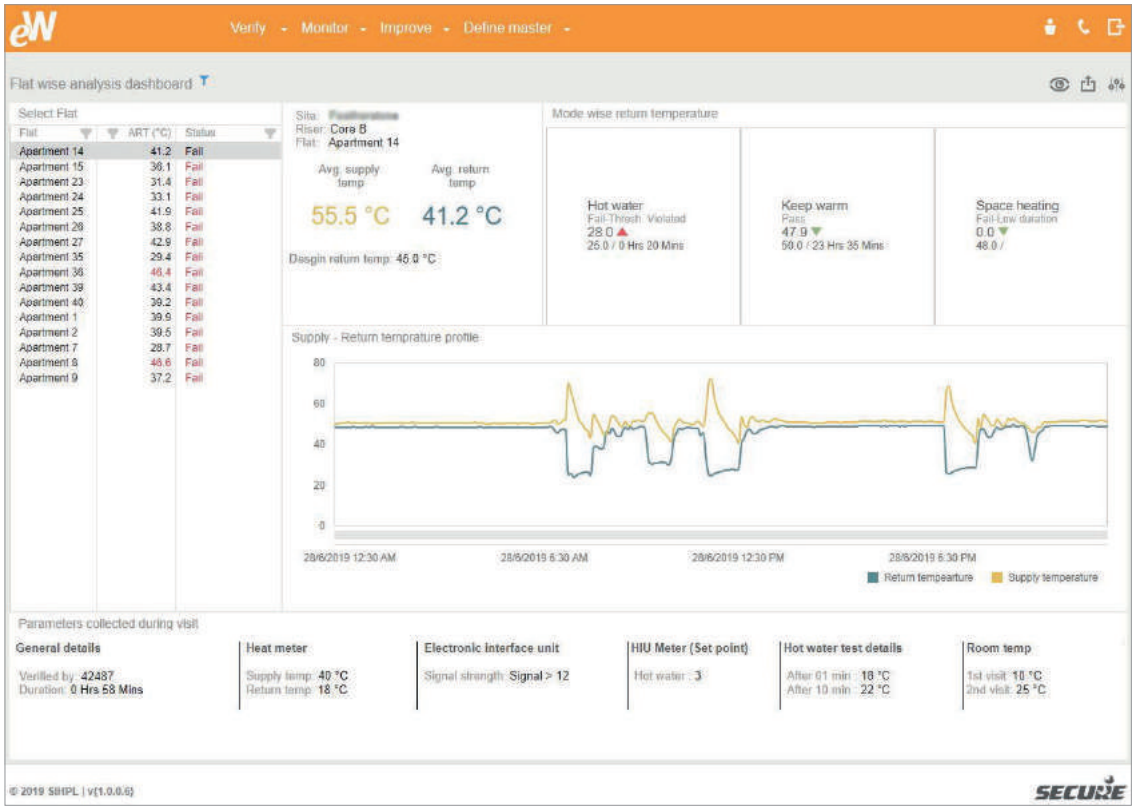
User-friendly app verifies network system performance. With automated collection of designed parameters, each property within a network can be verified by following a series of simple steps.

Comprehensive reports ensure conformance to heat network regulations, and that the proving period is carried out under controlled conditions.



Key features

- Mobile app to guide engineers with on-site verification.
- Asset register verification reports.
- Properties passed or failed based on design parameters.
- Energy centre proving period, post verification.



eWatch heat dashboard

Benefits

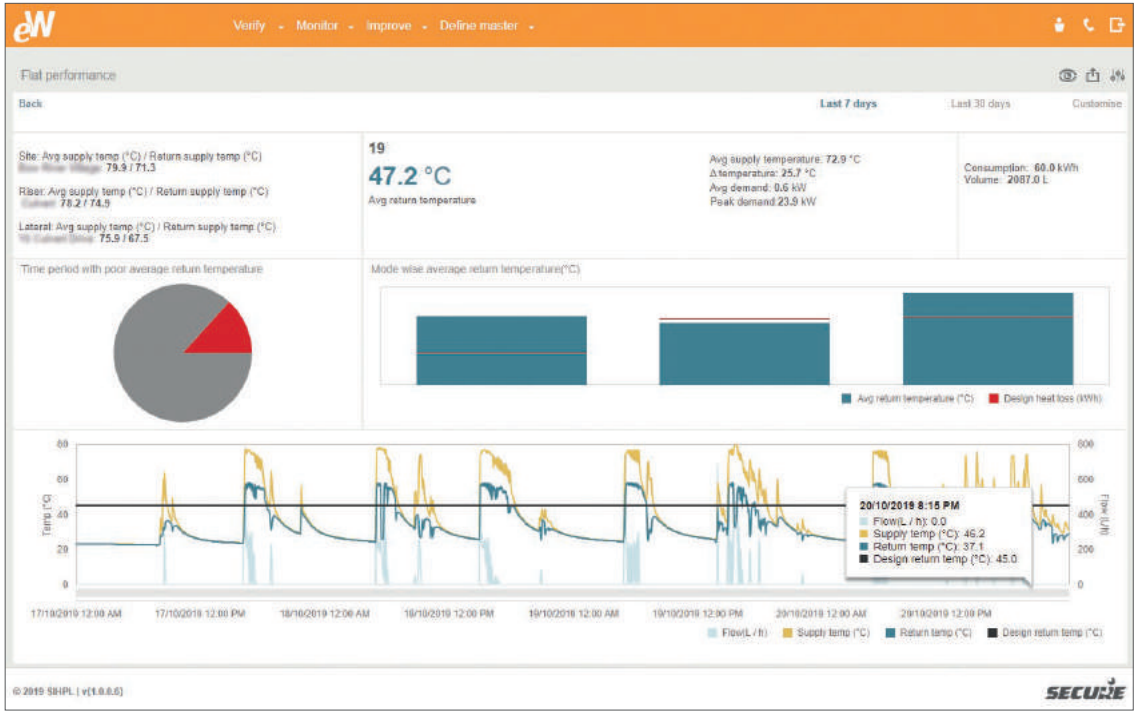
- On-site verification ensures commissioning is carried out correctly.
- Comprehensive reports provides evidence of correct verification and avoids the need for a commissioning verification expert to perform acceptance testing during handover from contractors.
- Design specifications delivered or improved upon.
- Avoids high heat-loss due to poorly commissioned network.
- Remote assurance of adequate heating and hot water.
- Useful tool for Housing Associations, property developers and consultants for data analysis, to target future improvements.

Monitor system performance

The eWatch heat monitoring service simply and swiftly identifies problems requiring attention and supports remote fault diagnosis.

Key features

- Comprehensively monitors network efficiency.
- Performance dashboards analyse every stage of the system - compare weekly, monthly and seasonal data.
- Yearly and seasonal benchmarking.
- Granular data drills down to every metering point (riser, apartment and plant room).



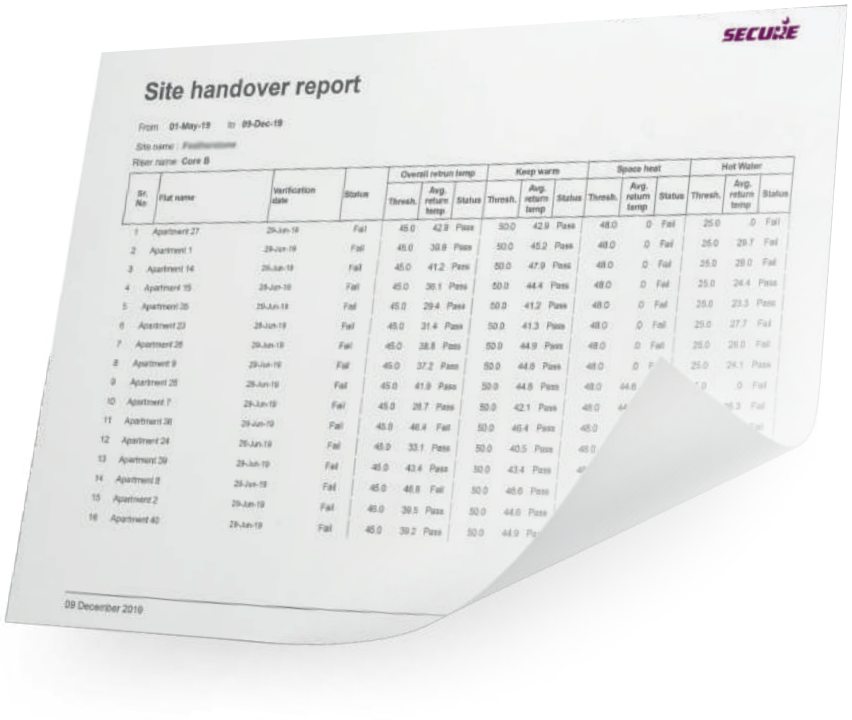
Flat performance dashboard

Benefits

- Monitoring dashboards support proactive service and maintenance regime.
- Proactive system maintenance helps fulfil maintenance contracts.
- Save time on site by visiting properties with known issues.
- Performance dashboards aid fault analysis and identify site performance patterns.
- Benchmarking helps improve long-term efficiences in your heat network.
- Call-out support provides back-up to resolve customer complaints quickly.

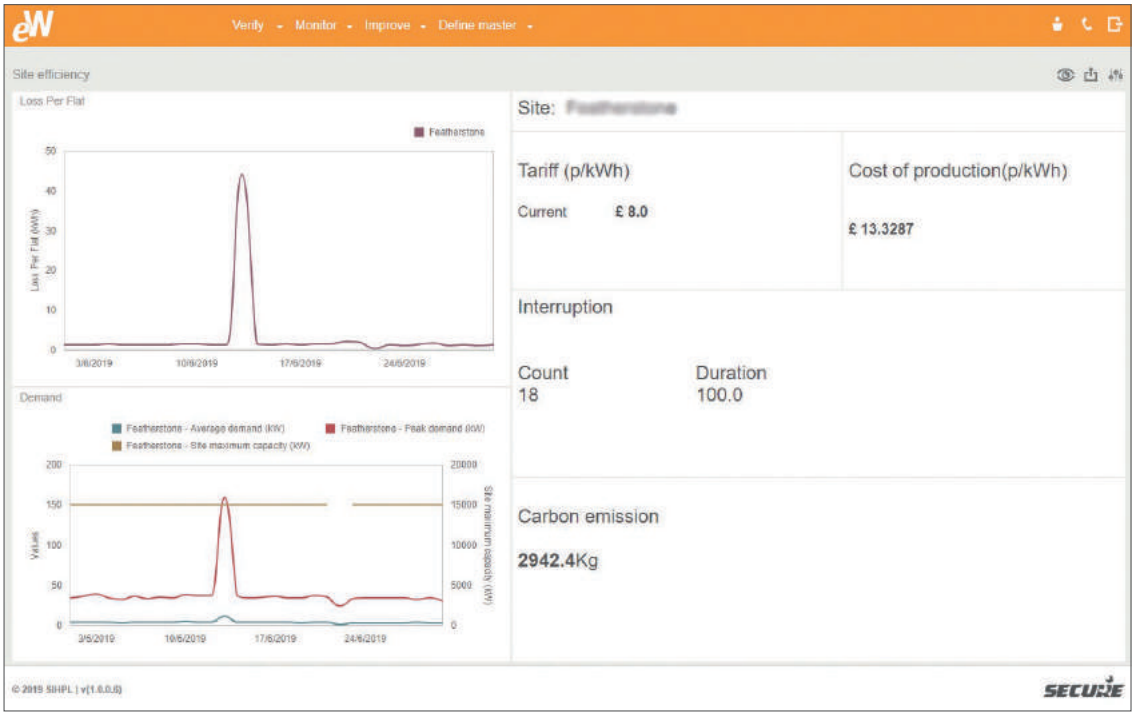
Improving system performance

The eWatch heat service offers owners and operators of heat networks improved visibility of consumption and generation. The service helps to set fairer tariffs based on precise performance data.



Key features

- Multi-site performance dashboards.
- Benchmarking between sites.
- Carbon emission reports.



Site efficiency dashboard

Benefits

- Better visibility of demand supports consistent provision of heat and hot water.
- Using precise performance data and setting-fairer tariffs supports savings for consumers.
- Better visibility of cost for maintaining similar sites.
- Provides quality data for business reporting.

Case study: Remote problem detection

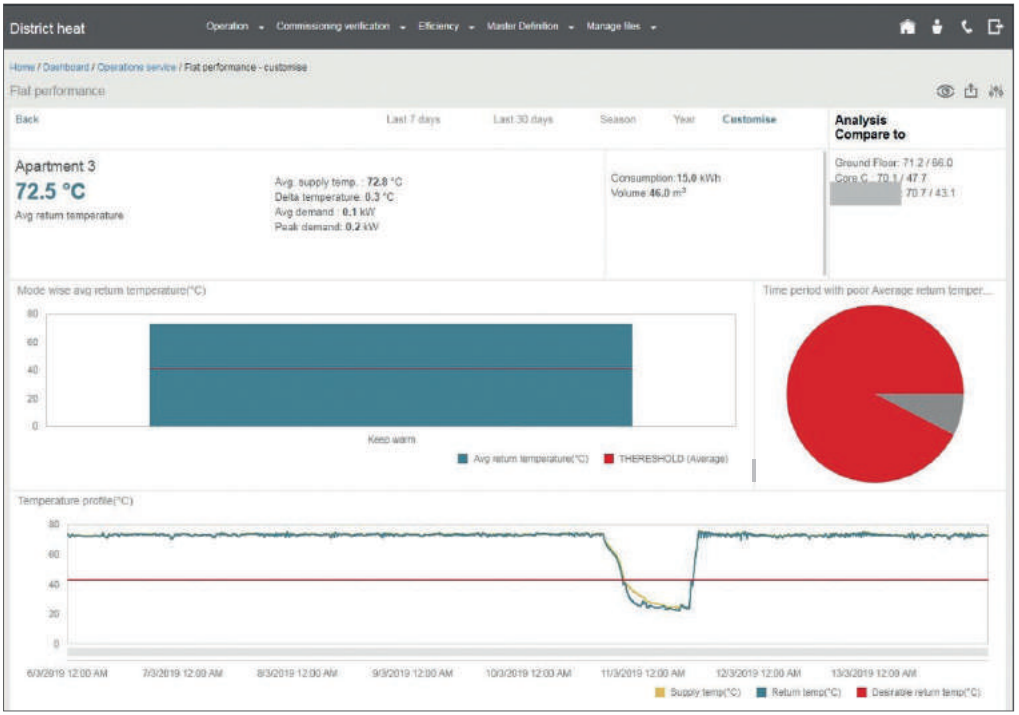
Background

Newly built communal heating site in central London with 55 apartments, some remained empty.

Liberty Connect 100 meters commissioned in all properties. Three bulk riser meters and the energy centre also metered with Liberty Connect 100.

The site represented one of the better heat networks, probably the best for the housing association concerned. During our study period heat loss at the site was in the range of 30-35%.

Problem located in apartment 3



Dashboard highlighting above average return temperature in a void property

What we found

- The eWatch heat dashboard for the property flagged up an empty apartment showing a constantly high return temperature. A site visit uncovered that a UFH pump was permanently running and also a high volume of flow within the riser meter to which it was attached.
- After remedial work, the flow and the high return temperature dropped. The efficiency of the whole site improved.

Results

Based on the site tariffs, each household made an **annual saving of £45** Representing a **total saving of nearly £2.5k for the building,** on an already efficient site.

eWatch heat

Find out more about the eWatch heat service

We're here to improve the efficiency of your heat network, please get in touch with our sales team.

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