

RavenResidential

Heat Network Energy Optimisation

Encouraging Heat Networks to Flourish

Energy Monitoring is a prerequisite for keeping the cost of heat as low as possible and will help to ensure that a Heat Network remains an attractive asset throughout its lifespan.

The RavenResidential platform is designed to help Heat Networks deliver their promise, which is to reliably provide low-cost, low-carbon heat.

Our Danish Connection

myEnergiRaven was the first digital energy monitoring system developed in Denmark. Created by EnergiData with the ambition to improve the energy efficiency and lower the cost of energy for commercial and multi residential property owners as part of a complex building portfolio.

myEnergiRaven

The intuitive myEnergiRaven software portal collects, converts, and breaks down traditional energy consumption data into user-friendly metrics for the whole Heat Network, down to the individual dwelling, distribution and energy centre equipment meters.

This approach using comparative data, pinpoints the worst performing dwellings, as well as allowing the operator to scrutinise and improve network and energy centre efficiency.

Our Partner

EnergiRaven was established in the UK by SAV Systems. As a company of Danish heritage, we have instinctively looked towards the experiences of Denmark and its Scandinavian neighbours to introduce low carbon & renewable technology solutions to the UK.

Since 1988, SAV Systems has been supplying best practice technology solutions from leading technology partners to the Heat Network industry. SAV's mission statement is to **"achieve optimum indoor living, with minimum energy wastage."**

EnergiRaven | **SAV**₆

Accountability from design through to ongoing use

RavenResidential offers the heat network owner an audit trail of performance throughout the lifespan of the heat network.

The platform also gives key stakeholders such as consultants and contractors, increased visibility to ensure that the heat network performs as intended.

Design

A Heat Network should be designed for at least a 20-year lifespan. During this time, the designer should have a feedback loop to demonstrate that the network is commissionable, performs efficiently, and generates low-cost heat.



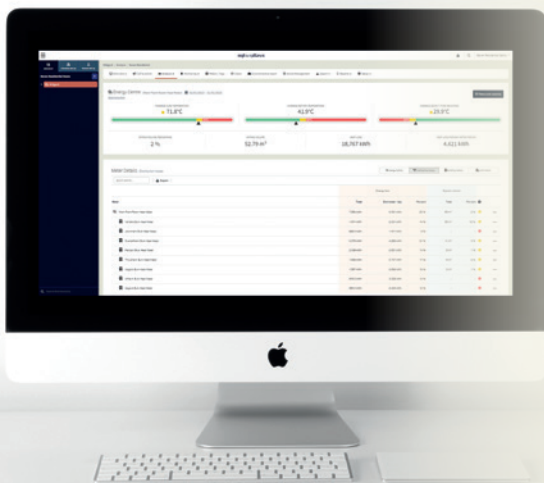
Installation

Problems arising from incorrect or poor installation will typically first become evident during commissioning and actual operation. Mixing up Heat Network flow and return pipes and poor insulation are typical examples that may increase costs for the network owner.



Commissioning

Those responsible for commissioning will be able to verify that performance is as intended, and where it is not, the additional layer of transparency will speed up fault finding and problem resolution.



Verification & Handover

Final acceptance for whether the scheme is as desired may be difficult to determine without being sufficiently informed. Being able to prove that the Heat Network performs as designed and according to CP1 Best Practice should therefore be a requirement by the owner.

Ongoing Use

To keep Heat Network tariffs as low as possible, continuous monitoring of the network is required. The Heat Network owner and operator should have an audit trail of the energy performance from building level down to the individual dwelling, distribution and energy centre equipment meters.



Heat Network Tariffs

Monitoring is a requisite for applying an equitable billing platform. To successfully implement heat network tariffs will require key data and increased digitalization.

Using motivational tariffs Danish district heating companies have been able to reduce the overall cost of heating for consumers, while also improving the efficiency and reliability of their networks.

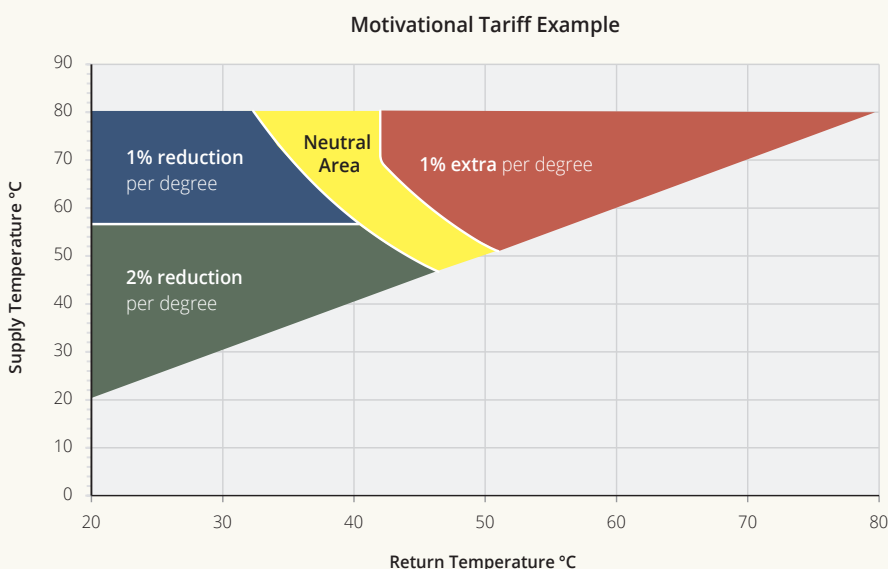
These tariffs minimise costs and emissions via a two-pronged approach: penalising customers for higher return temperatures while offering discounts for lower return temperatures. The result of these combined elements is a more transparent and equitable network for all users.

Under a motivational tariff model, a network operator may set an average annual return temperature of 35°C. Then, a customer averaging 30°C would receive a discount (based on total megawatt-hours consumed), while another averaging 40°C would receive a penalty charge – and a clear incentive to improve their efficiency. Through ongoing monitoring, both customers and operators can access real-time temperature data and cooperate to make upgrades that benefit the entire network.

In addition to enhancing performance, motivational tariffs are cost-effective for operators, who can use penalty income to fund discounts for more efficient customers. In the spirit of fairness, the operator may also choose to cap pricing variations so that bills cannot rise or fall by more than a set percentage.

Heat Network Monitoring

- Identify energy usage patterns: Identify opportunities for energy & cost savings, such as optimizing equipment operation or implementing spot pricing (switching to cheaper heat generation).
- Pinpoint energy waste: Identify areas where energy is being wasted, such as leaks in the heat network or inefficient equipment.
- Improve system efficiency: This might include upgrading equipment, adjusting system settings, or optimizing maintenance schedules.
- Facilitate preventative maintenance and repairs: This information can help locate and prioritize maintenance activities and reduce downtime due to equipment failure.



Key Features

Total building portfolio overview

Both commercial and multi-residential buildings can be monitored and managed from one place. RavenBuildings and RavenResidential are displayed in the myEnergiRaven software portal.

Technology Agnostic

Building portfolio data can either be uploaded manually or automatically via Automatic Meter Reading (AMR).

Energy Accounting

Designed to quickly identify and calculate a building estate's actual energy consumption, cost, and carbon footprint, comparing it against a budgeted benchmark. Energy consumption is displayed in kWh/m² as well as £.

Key Metrics

- Calculates heat loss and bypass volume for any user defined interval.
- Calculates VVART and VVAFs for any user defined interval.
- Calculates and breaks down distribution heat loss and system bypass calculations to help locate problematic zones.

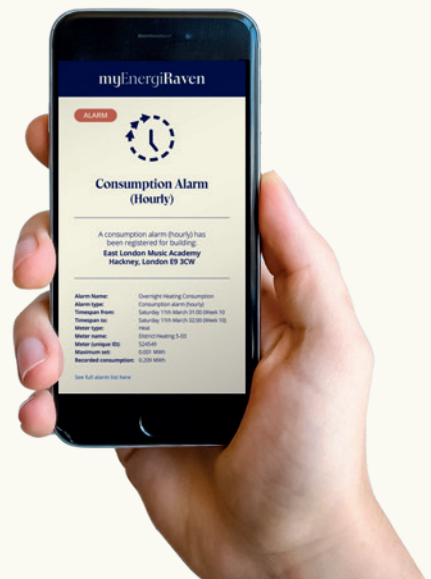
Reporting

- Simplified reporting of the GLA's Be Seen.
- Simplified ESG reporting.
- Simplified reporting of Scopes 1,2 and 3 (mandatory Green House Gas (GHG) reporting in the UK).

Call to Action Alarms

Create alarms to monitor key metrics and deviations, such as ΔT .

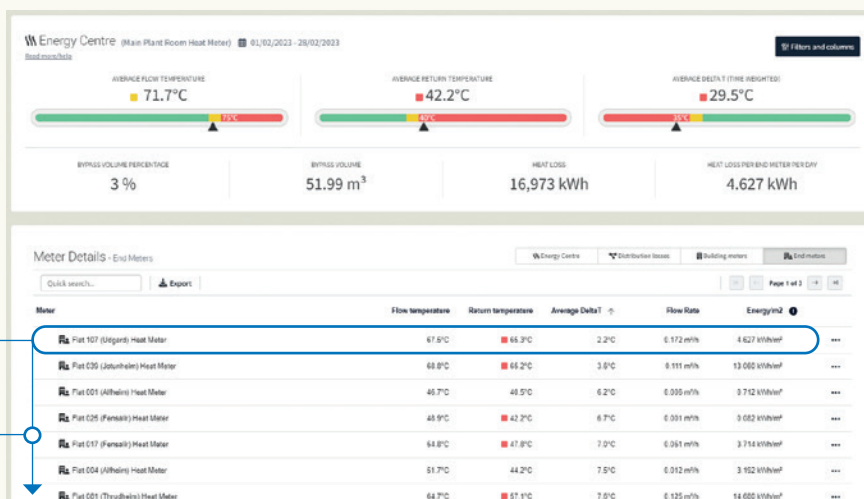
- Direct notifications to Energy Managers, Maintenance Company and the Building Owner & Operator.
- Improves efficiency and eliminates performance drift.
- Speeds up fault finding and problem resolution.



Key Features

Performance based servicing

Offers continuous improvement of performance through benchmarking of key metrics from building level down to the individual dwelling and sub-meter.

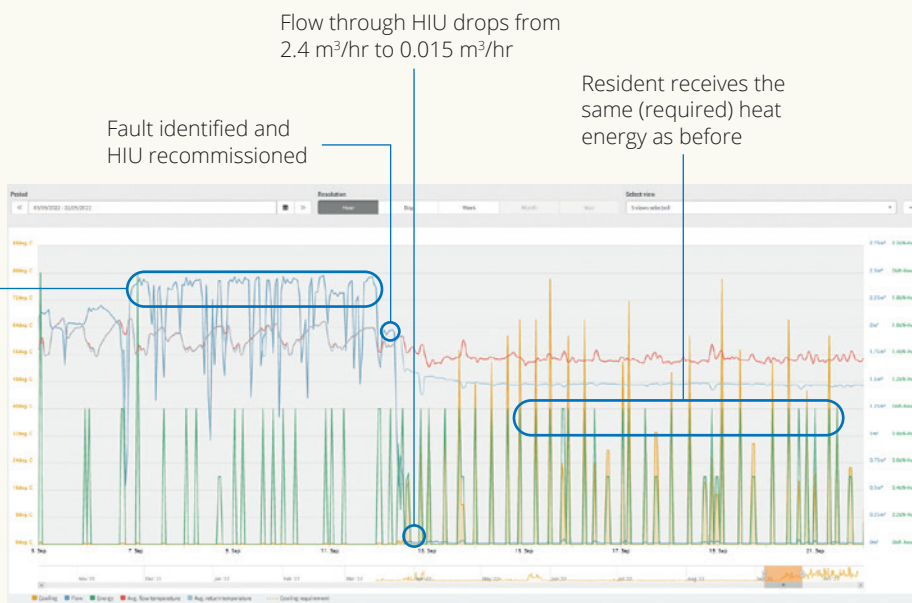


Identify poorly performing apartments

Prioritise maintenance & rectification of faults

Real time data

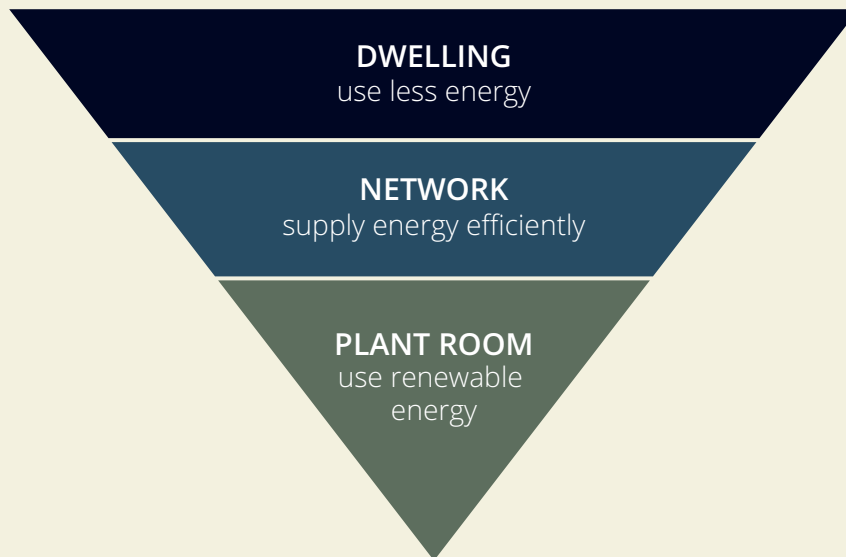
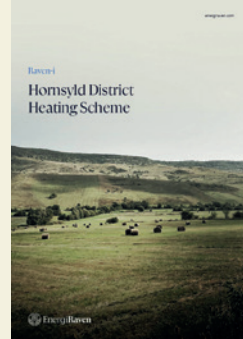
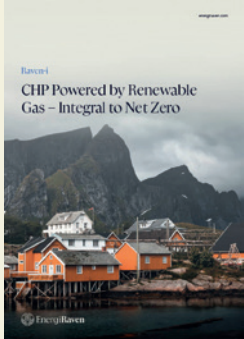
Intuitive and simple drill down to locate faults i.e. by block, building and dwelling. View in real time when faults have been fixed.



High flow rate due to poor commissioning or servicing of HIU

Related documents:

Explore our library for more Raven-i documents: www.energiraven.com/the-library



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