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How Housing Associations are Improving Heat Network Performance with HNES



Welcome



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Please mute microphones to limit disruption



If you are not speaking, please turn off webcams to improve video quality



Please ask questions using the Q&A functionality



This webinar is being recorded and slides will be distributed after

Agenda



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Session	Presenters
Overview of how HNES supports housing associations	Louise Singleton, HNES Programme Manager, Talan
Funded Project: Hawthorn Mill, Leeds	Reuben Davis, Connect Housing James Hanson, Sayes Ltd
Funded Project: Richmond Park, Sheffield	Lisa Sharples, Great Places Housing Association
Funded Project: Woodbrooke House, Bangor House and Newnham House, Solihull	Andy Duke, Solihull Community Housing Arran Kirkbright, Chirpy Heat George Dawson & Ray Lees, Dodds Group
How you can benefit from HNES funding	Katy Ansari, HNES Application and Grant Funding Lead, Talan
Q&A	All



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Overview of how HNES supports housing associations

Louise Singleton, HNES Programme Manager

Aims and Objectives of HNES

1. Reduce carbon emissions by making heat networks more efficient
2. Reduce customer detriment to improve consumer confidence
3. Help prepare the heat network market for sector regulation and technical standards

What HNES has achieved so far...

449

Heat network
projects funded

Capital and revenue
funding awarded

£81.2M

80,400

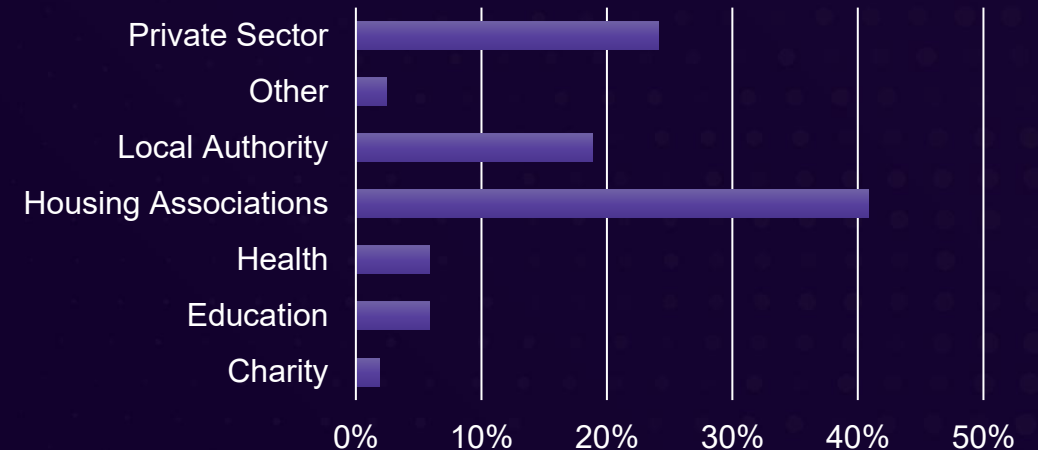
Residents
benefitting

One-way flights from
London to New York worth
of carbon emissions saved

124,680

Averaged over 40 years

Percentage of Funded Sectors



Private Sector includes resident associations

What has been funded and where?



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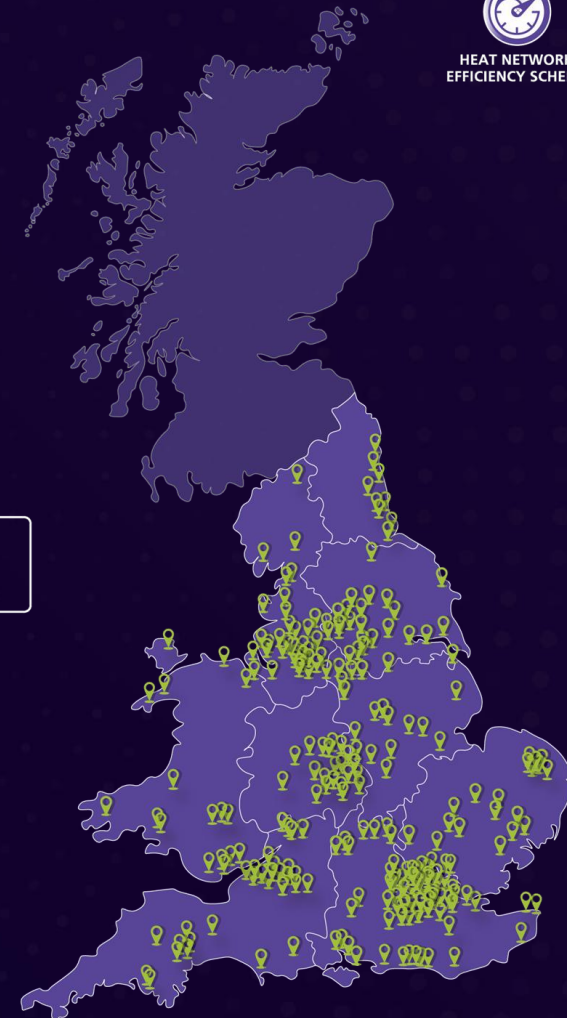
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Upgrading pipework	Improving insulation
Updating controls	Replacing HIUs
Improving water quality	Reducing leaks

HNES Funded Projects



Funded project locations





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Round 10 Successful Projects

**£15.6 million
awarded**

**94
heat
networks**

**Set to
benefit
10,400
residents**



£15.6 million awarded in HNES Round 10 | HNES

Housing Associations Supported through HNES



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240

Heat network
projects funded*

61 Capital and 179
Revenue Projects



£37.8M

Funding Awarded



*Figures not including funding to local authorities

Hawthorn Mill and Nowell Court

Connect Housing & Sayes Service- Commercial Heating
Upgrades

About Connect Housing

- Connect Housing are a small housing association based in west Yorkshire, with around 3500 homes.
- Reuben Davis, apprentice building surveyor working within Connects Asset Investment team. Studying BSc Hons in building surveying at the University of the built environment.
- We only have a very limited number of heat networks that fall within the heat network regulations, including Hawthorn Mill & Nowell Court.
- Due to the size of our organization, we had no M+E expert internally, but a strong desire to do the best we can for our residents.
- The work with HNES has been crucial for trying to do the best we can to have a positive impact on our residents, aiming at improving comfortability within their homes.



About us:

- Sayes Service Ltd are a Leeds based SME.
- Operate across Yorkshire and the Humber.
- Specialise in HVAC maintenance, installation and project delivery.
- Over 90 years of industry experience.



About me:

- James Hanson, Associate Director.
- 20 years with Sayes Service Ltd.

Our role:

- Principal Contractor for Connect Housing's HNES project.
- Completing the work on time and budget.
- Achieving a 100% health and safety compliance audit score.
- Achieving positive resident and client feedback.



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Hawthorn Mill

- Hawthorn Mill is a supported housing complex for people over 55.
- Located in Leeds, made up of 34 dwellings which are connected to the communal heat network. The heat network is fed by a single plant room containing three gas fired boilers.
- Built in 1993, it was identified as operating at low efficiency, around 38.8%.
- Purpose built with large communal areas, a strong community focus.
- The building has an extensive warden call system as well as other modern technology integrated.

Nowell Court

- Nowell Court provides general needs social housing in Leeds and comprises of 22 flats, all of which are connected to the communal heat network.
- The heat network is fed by a single plant room containing two gas fired boilers.
- Built in 1970, it was identified as operating at low efficiency, which was estimated at around 37.3%.



Optimisation Study

- Initially we received revenue funding to fund optimisation studies on both sites this was undertaken by Chirpy Heat.
- Connect Housing tasked Chirpy Heat with providing an optimisation study to identify measures to improve efficiency and other metrics at Nowell Court and Hawthorn Mill.
- A site visit was undertaken by Chirpy Heat on the 04/01/2024 at Hawthorn Mill and 05/01/2024 at Nowell Court. During these visits, the plant rooms, distribution systems and residential properties were viewed. Various measures were identified during this visit.

Hawthorn Mill- Key Study Findings

- Annual Energy Costs- the study identified 9 heat network optimisation measures identified which could save around £2,807 in annual energy costs and 201 tonnes of CO₂e over a 20-year life cycle.
- Decarbonisation- the current carbon content of delivered heat at Hawthorn Mill was 0.47kgCO₂e/kWh, with the optimisation study identifying measures that can reduce that by 17% to 0.39 kgCO₂e/kWh.

Summary		Lifecycle (years)	Total Costs Over 20 years	Payback period years	Return on Investment (ROI) %
F1	Set PTRVs to design ΔT	20	£2,890	3.3	502%
F2	Install thermostats in dwellings	20	£4,250	9.8	105%
F3, F4	Set tap flow rates and review DRV settings	20	£2,890	9.1	119%
P6, P7, P8	Review set points and flow rates in plant room (incl. reduce temp.)	20	£1,165	0.9	2140%
D1, P3	Install remote DP sensor & control the pumps	20	£3,000	5.4	269%
D2, P1	Insulate exposed valves and flanges	20	£1,975	10	100%
P2	Partly open & insulate dosing pot	20	£550	13.9	44%
P4	Water treatment	1	£5,300	22.3	-10%
P5	Install flow control valve on bypass to communal DHW cylinder	20	£575	3.6	450%
Total		20	15,455	5.51	263%

Nowell Court- Key Study Findings

- Annual Energy Costs- the study identified a package of 9 heat network optimisation measures which could save around £1,325 in annual energy costs and 94.7 tonnes of CO₂e over a 20-year life cycle.
- Decarbonisation- the current carbon content of delivered heat at Nowell Court was 0.49 kgCO₂e/kWh, with the optimisation study identifying measures which can reduce that by 16% to 0.41 kgCO₂e/kWh.

Summary		Lifecycle (years)	Total Costs Over 20 years	Payback period years	Return on Investment (ROI) %
F1	Insulate pipework around thermal stores	20	£3,190	18.7	7%
F2	Install and commission pre-settable TRVs	20	£4,290	11.6	72%
F3	Install a non-return valve on thermal store (if/where required)	20	£1,430	44	-55%
F4 & F5	Set DHW flow rates and check DRVs on primary returns	20	£1,870	10.2	96%
P1	Water Treatment (including annual inhibitor dosing)	1	£5,675	26.8	-26%
D1	Fit DP sensors to control circuit pumps	20	£3,000	9.7	106%
D2	Insulate exposed valves/flanges on distribution pipework	20	£2,750	96.6	-79%
P3 & P4	Insulate & partially open dosing pots & fix pressure relief valve (boiler 1)	20	£375	18.5	8%
Total		20	£22,580	17	17%

Although three items appear to provide negative payback over the period analysed, in terms of fuel savings, they have been included in the

Smarter, greener heating arrives at two Connect sites

A project to upgrade the heating systems at two housing complexes in Leeds has been completed.

Hawthorn Mill and Nowell Court have had their energy systems future-proofed by the upgrade, which was partially funded through the Heat Network Efficiency Scheme.

Reuben Davis, Lead Point Representative for Connect Housing, said the work kicked off with an

Reuben Davis



optimisation study, which showed “there was the potential to improve the heating in terms of energy consumption by 17%”.

Once the funding was secured, Sayes Ltd was hired to complete the project, which included installing thermostatic radiator valves and commissioning stations in every home, so that each individual radiator throughout the buildings gets exactly the heat it needs.

A new Building Management System (BMS) control was also installed at both sites, which James Hansen, General Manager for Sayes, describes as “essentially the brains of the heating system”.

It’s hoped that the work will future proof the buildings, so that as technology advances and the building use may change, the controller can adapt and keep tenants warm and comfortable for many years to come.



What we did

<https://www.youtube.com/watch?v=4Uv0bAp9Esc>

Scope of Works Delivered

Thermal Efficiency Improvements

- Upgrading and reinstating thermal insulation where pipework was exposed, reducing heat loss throughout the networks.

Dwelling Level Optimisation

- Installation and commissioning of dynamic pre-settable TRVs.
- Installation of domestic hot water flow restrictors and optimisation of flow rates.
- Installation and commissioning of primary heating commissioning stations.

Heat Network Improvements

- Optimisation of heating distribution pump controls.
- Improving system balancing and hydraulic performance.

Building Control Upgrades

- Replacement BMS panels and controllers.
- Installation of modern NX controllers.
- Enhanced digital monitoring, reporting and future expandability.



Beyond the Physical Installation

Energy Efficiency

- Reduced distribution heat losses.
- Improved temperature control.
- Better network balancing.

Enhanced Resident Experience

- Improved comfort control within dwellings.
- More consistent system performance.

Smarter Asset Management

- Modern NX BMS platform.
- Enhanced monitoring and reporting capability.
- Expandable system for future technologies.

Future Ready Infrastructure

- Additional metering and temperature monitoring can be incorporated.
- Capability to integrate further building services.
- Supports ongoing asset optimisation strategies.



Why we did it?

- Initially we were very concerned about the impact of the Russia / Ukraine War and other global events on residents' fuel prices, so the work with HNES has been crucial to trying to do the best we can to have a positive impact on our residents.
- Our corporate strategy, “fairer, greener, smarter” aligned with the intentions of HNES and the new heat network regulations released in January 2026.
- HNES gave us a great opportunity to invest into our stock to improve environmental, social and economical sustainability. Through the project we were able to decarbonise our larger blocks but also provide a more comfortable heating systems through smarter technologies.

By 2027 we expect to achieve:

Renewable technology

Solar panels and battery storage systems installed.

>500 homes

Retrofit

Heat pumps or other low carbon heating systems installed.

>100 homes

Success Factors

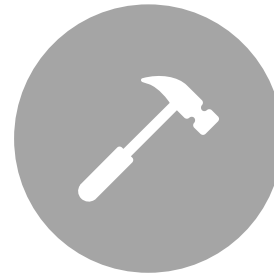
- ✓ Early contractor involvement
- ✓ Strong client-contractor collaboration
- ✓ Clear resident communication and aftercare
- ✓ Robust programme management
- ✓ Flexible approach to unforeseen challenges
- ✓ Focus on safety and quality throughout



Key Factors To Consider



A window program was completed alongside the heating upgrades which aimed at further enhancing the buildings thermal performance.



Minor repairs were expected due to the age of the building fabric, contingency fee of 15% of the total costs of the tender for each block was included to help improve emergency repair times.



The ongoing monitoring and reporting from grant confirmation through to completion of works has been straightforward. We are hopeful that measures will have a positive impact. We have Switch 2 engaged, reports on system efficiency from Chirpy Heat.



Feedback from residents up to this point, improvements – in terms of efficiency savings it's been warm. The work has only just completed which means there has not been a lot of data to report on, we need 12 months consumption data.

Thank You

James Hanson

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Supporting housing providers and local authorities with:

- Heat network optimisation
- HVAC maintenance
- Capital improvement projects
- Building services design
- Principal Contractor project delivery

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Richmond Park Heat Network Retrofit

Delivering Affordable, Efficient Low-Carbon Heat

Lisa Sharples Energy & Heat Networks Manager

The Challenge

Excessive heat losses across the network

High return water temperatures

Poor insulation

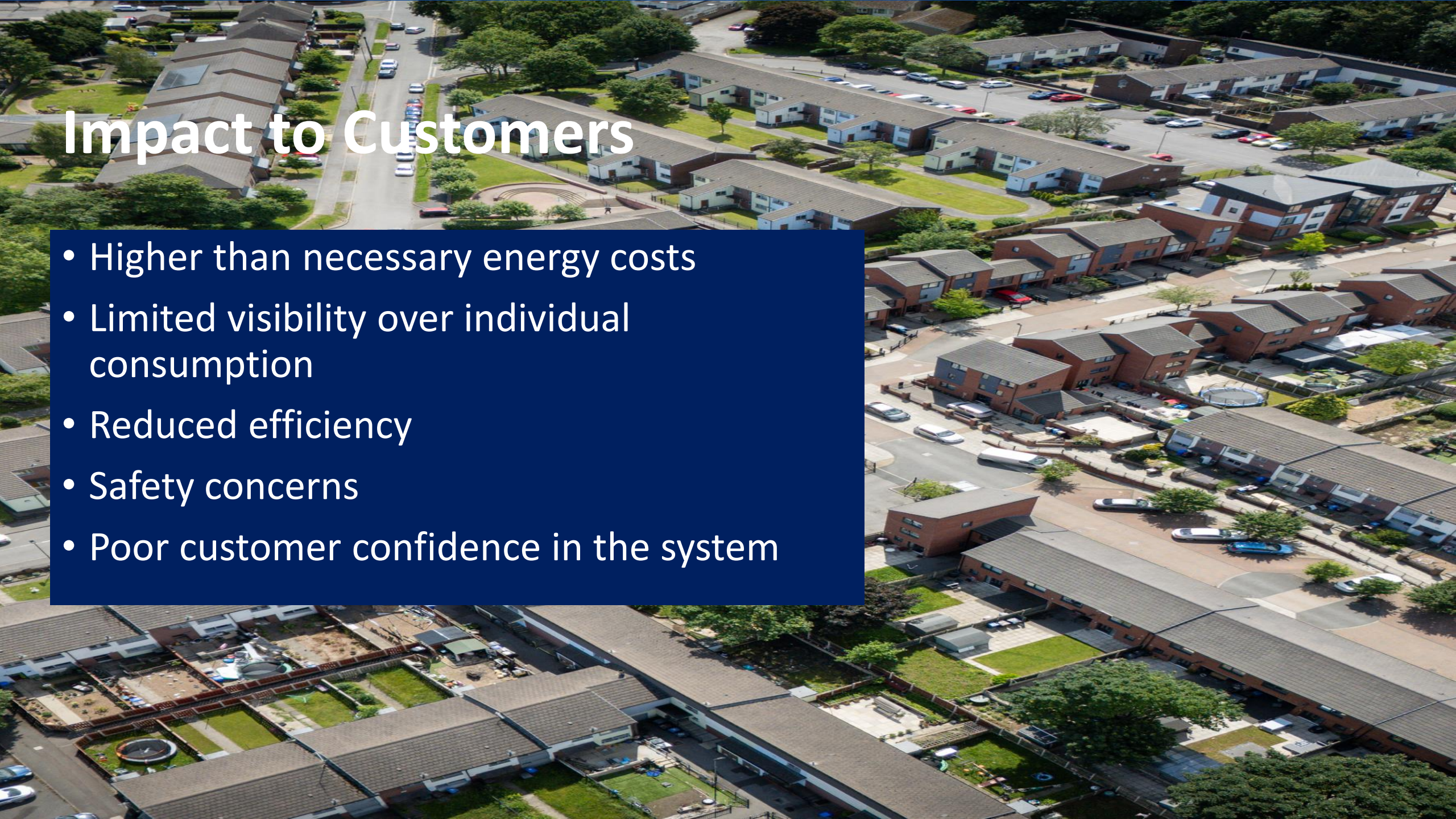
Limited heating controls

Ageing and unsafe domestic hot water cylinders

Unreliable heat meters resulting in estimated bills

Lack of data

Low customer trust

An aerial photograph of a suburban residential neighborhood. The houses are mostly two-story brick or siding homes with brown roofs. There are green lawns, trees, and some swimming pools visible in the backyards. A semi-transparent blue rectangular box is overlaid on the left side of the image, containing white text. The text is arranged with a large title at the top and a bulleted list below it.

Impact to Customers

- Higher than necessary energy costs
- Limited visibility over individual consumption
- Reduced efficiency
- Safety concerns
- Poor customer confidence in the system

The Solution

A targeted retrofit programme across **299 homes and a community centre:**

- Insulation upgrades
- BMS automation and smart controls
- Weather compensated boilers
- Closure of network bypasses
- Radiator recommissioning
- Water quality improvements
- Cylinder replacements
- HNES funding for both revenue and capital



Customer Impact - Making a Real Difference for Customers

£513 Average Annual Saving Per Household

50% reduction in customers tariffs

Residents now benefit from:

- Lower heating bills
- Greater control over household budgets
- Accurate billing through reliable metering
- Real-time visibility of energy usage
- Improved heating and hot water reliability



Customer Impact

Making a Real Difference for Customers

The retrofit has significantly improved network performance.

- **Results Achieved** 40% Reduction in heat losses
- 23% Reduction in gas consumption
- 64% Reduction in electrical consumption

Outcomes

- Lower carbon emissions
- Reduced fuel use
- Improved operational efficiency
- Stronger foundations for future decarbonisation

Delivering With Customers

- 95% customer engagement
- Dedicated Customer Liaison Officer
- Multi-channel communications
- Heating and hot water maintained throughout
- No resident decants required
- Collaborative working



Resident-first delivery with minimal disruption

Thank you

Solihull Community Housing: Woodbrooke House, Bangor House and Newnham House

Improving Reliability • Efficiency •
Long-Term Network Performance

Andy Duke – Solihull Community Housing

Arran Kirkbright – Chirpy Heat

George Dawson – Dodd Group

01 | Programme Summary

A coordinated engineering improvement programme delivering enhanced reliability, efficiency and long-term resilience across communal heat networks serving approximately 570 apartments.



3 Energy Centres



8 Residential Tower Blocks



Approximately 570 Apartments



Heat Networks Installed 2012



3x HNES Capital Round 7



A coordinated engineering programme delivering improved reliability, efficiency and long-term resilience across communal heat networks.

02 | Why Investment Was Required

Engineering investigations identified common issues affecting network performance.



Plantrooms

- Obsolete BMS
- Limited plant optimisation



Distribution

- Carbon steel corrosion
- Failed Insulation



Apartments

- HIUs requiring recommissioning
- Hydraulic imbalance
- Low demand, over supply



Operational Impact

- Increasing maintenance costs
- Reduced resident comfort & satisfaction
- Lack of trust in the system to deliver heat
- Political pressure to address issues



Reactive maintenance was no longer sustainable. Evidence-led engineering was required to deliver long-term improvements.

03 | Evidence-Led Investigation

Engineering decisions were informed by structured condition surveys, optimisation studies and detailed assessment of the existing network.

 **Condition Surveys**

 **Water Quality Assessment**

 **Network Performance Assessment**

 **Optimisation Study**



Every engineering decision was evidence-led.

04 | Engineering Solution Strategy

Following the engineering investigation, a targeted strategy was developed to maximise reliability, improve efficiency and extend the operational life of the heat networks.



Improve Reliability

Replace obsolete controls and critical components while retaining service continuity.



Improve Efficiency

Optimise plant operation, hydraulic performance and energy use.



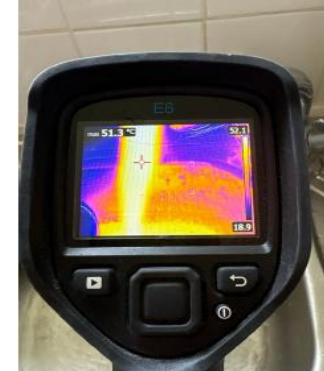
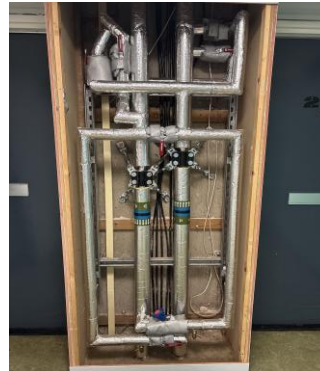
Improve Maintainability

Install modern equipment with long-term parts availability and simplified maintenance.



Future-Proof the Network

Use durable materials and modern controls to maximise asset life.



The engineering strategy focused on delivering reliable, efficient and maintainable heat networks while maximising the value of HNES investment.

05 | Engineering Scope

The programme combined improvements within apartments, the distribution network and the energy centres to deliver a fully integrated communal heat network upgrade.

Apartment Improvements

Recommission Heat Interface Units (HIUs)

Install pre-settable TRVs

Chemical treatment of tertiary systems

Improve hydraulic balancing

Distribution Network

Replace carbon steel distribution pipework

Install ABQM bypass valves

Upgrade pipe insulation

Dynamic flushing & water treatment in accordance with BG29

Energy Centres

Install new Building Management System

Differential Pressure pump control

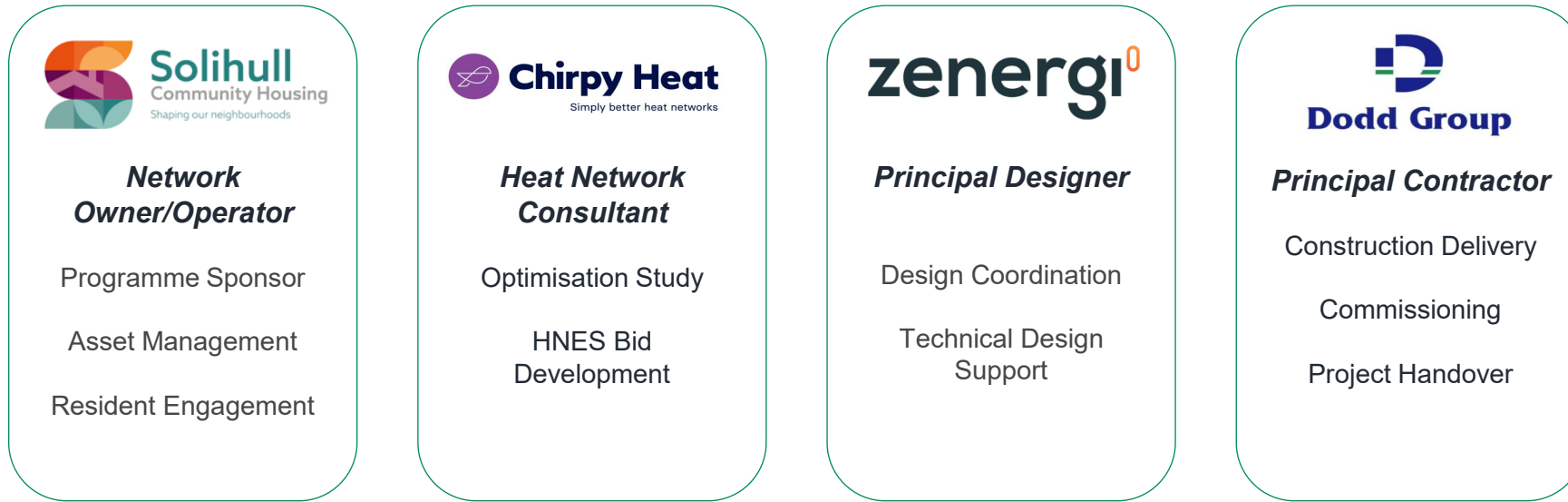
Plant optimisation strategies

Primary circuit flushing & recommissioning

A coordinated programme of works delivered improvements across every part of the communal heating system, from the energy centres to the residents' apartments.

06 | Project Delivery Partnership

Successful delivery relied on meticulous planning, close resident liaison and phased commissioning to maintain uninterrupted heating and hot water services throughout the live works.



Concept → Survey → Design → Construction → Commissioning → Handover

Collaboration between the client, specialist consultants and contractor was fundamental to the successful delivery of the programme.

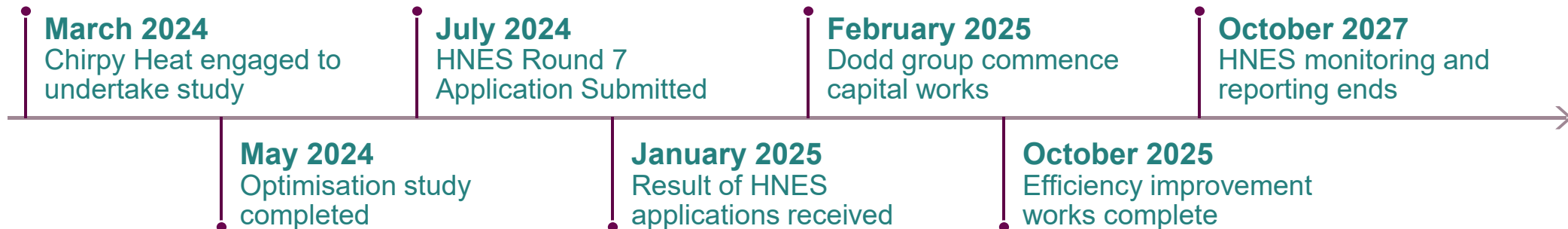
07 | Funding and Timelines

The HNES support offered by Chirpy Heat and Dodd Group follows a tried and tested procedure

Typical Procedure



Timeline for this project



08 | Engineering Transformation

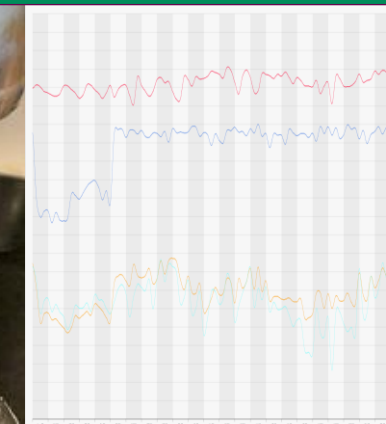
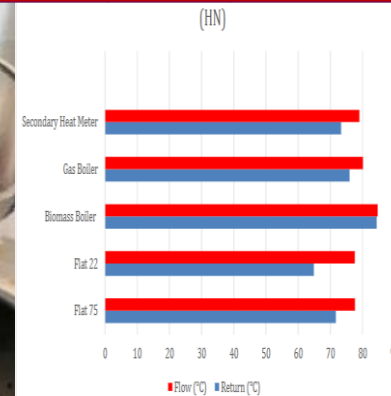
Each engineering intervention directly addressed issues identified during the investigation.



BEFORE



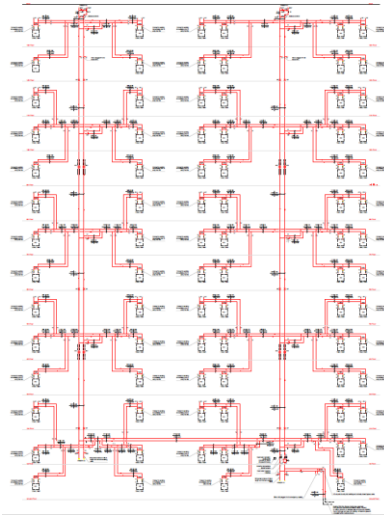
AFTER



Each intervention delivered measurable improvements in reliability, efficiency & maintainability

09 | Programme Delivery

Successful delivery relied on collaboration, quality assurance and a structured commissioning process.



Strong collaboration, quality assurance and structured commissioning ensured successful delivery across all energy centres.

10 | Operational Improvements

Targeted engineering improvements delivered significant operational benefits while retaining the original biomass-led operating strategy.



Biomass Strategy

- Biomass successfully retained as the lead heat source.
- Improved renewable heat utilisation.



Operational Reliability

- 100% plantroom availability following completion.
- No complete plantroom failures or outages recorded.



System Performance

- New Building Management System (BMS).
- Differential Pressure (DP) pump control.
- Improved overall system performance.
- Improved hydraulic stability and network control.



Long-Term Maintainability

- Modern equipment with readily available spare parts.
- Simplified maintenance and fault diagnosis.
- Future-proofed control strategy.
- 25-year manufacturer warranty on installed pipework



Resident Service Continuity

- The works were successfully delivered on a live heat network serving approximately 570 apartments.
 - Resident heating and hot water supplies were maintained throughout the replacement works.
- Careful phasing, close coordination and proactive resident liaison minimised disruption throughout construction.

The programme retained biomass as the lead heat source while delivering improved reliability, enhanced system performance and long-term maintainability.

11 | Measured Performance Improvements

Equivalent 12-month performance monitoring confirmed significant improvements following completion of the HNES improvement works.

Annual Electrical Consumption Comparison

Bangor

Pre-Works (Apr 2024 - Apr 2025): 58,960 kWh
Post-Works (Apr 2025 - Apr 2026): 41,943 kWh

↓ 28.9%

Woodbrooke

Pre-Works (Apr 2024 - Apr 2025): 49,977 kWh
Post-Works (Apr 2025 - Apr 2026): 28,092 kWh

↓ 43.8%

Annual Gas Consumption Comparison

Bangor

Pre-Works (Apr 2024 - Apr 2025): 53,894 m³
Post-Works (Apr 2025 - Apr 2026): 22,493 m³

↓ 58.3%

Woodbrooke

Pre-Works (Apr 2024 - Apr 2025): 40,947 m³
Post-Works (Apr 2025 - Apr 2026): 17,451 m³

↓ 57.4%

Annual performance monitoring confirmed significant reductions in energy consumption following completion of the improvement works.

12 | Programme Outcomes

The HNES Capital Round 7 programme has delivered reliable, efficient and future-ready communal heat networks while maintaining biomass as the primary heat source.

Engineering Outcomes

-  3 Energy Centres
-  8 Residential Tower Blocks
-  Approximately 570 Apartments
-  Biomass Retained as Lead Heat Source
-  100% Plantroom Availability After Completion
-  Resident Supply Maintained Throughout the Live Works



Resident & Client Benefits

- Reduced resident heating tariff, improving affordability and encouraging greater use of the communal heating network.
- Reduced energy consumption and operating costs through system optimisation.
- Real-time remote monitoring and proactive fault management via the Building Management System.
- Improved long-term resilience and sustainability of the communal heat network.

A modernised, resilient and efficient communal heating network delivering long-term value through improved reliability, lower operating costs and more affordable heating for residents.

13 | Next Steps

The HNES Capital Round 7 programme has delivered reliable, efficient and future-ready communal heat networks while maintaining biomass as the primary heat source.

1

Continue to monitor the results of these upgrades and feed learnings into future works

2

Deliver upgrade works for the 5x heat networks which received capital funding in HNES Round 10

3

Continue to address issues across SCH's portfolio, hopefully through securing further capital funding

SCH would like to continue delivering further works through this process for their remaining heat networks

Thank You

This programme demonstrates how evidence-led engineering, collaborative delivery and careful operational planning can successfully modernise communal heat networks while maintaining essential services for residents.

If you would like to hear more about the project or discuss support, please get in touch:

Andy Duke – aduke@solihullcommunityhousing.org.uk

Arran Kirkbright – arran.kirkbright@chirpyheat.com

Ray Lees – ray.lees@doddgroup.com

George Dawson – george.dawson@doddgroup.com





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How you can benefit from HNES funding

Katy Ansari, HNES Application and Grant Funding Lead

How much funding is available?

Revenue Grants

Full funding available for procurement or mobilisation of external third-party support to carry out Optimisation Studies.

These studies will assess heat network projects to identify causes of sub-optimal performance and recommend costed intervention or improvement measures.

Up to £2m for FY23/24 - 24/25, plus further funding in future financial years subject to availability

Capital Grants

Part funding
(up to but not including 50%)
available for the delivery (installation) of eligible intervention / improvement measures.

Up to £105m across FY23/24 to FY29/30

- Grant funding must be spent within its allocated financial year
- Match funding does not have to be spent at the same time as grant funding



Who can apply?

From Round 12 onwards - capital applicants must support Customers in Need, or demonstrate strategic rationale for funding (i.e. links to Green Heat Network Fund (GHNF) projects, or Heat Network Zones)

Operators of
existing district
heating networks
or communal
heating systems

Heat networks
situated in
England or
Wales

Public sector,
private sector or
third sector
organisations

Legal entities,
with authority to
sign-off
investment
decisions for the
heat network
they are
responsible for



Funding round closing dates

Round	Opening Date	Last Day to Request an Application Form	Closing Date for Applications
Round 13*	Expected to open on 17 th August 2026	25 th September 2026	Expected to close on 9 th October 2026
Round 14*	Expected to open in December 2026	Two weeks before closing date	Expected to close in February 2027

*subject to budget availability

Guidance for Applicants document can be accessed [here](#)



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Where to find help and support

- 🕒 Email hnes@talan.com for general enquiries and to request access to the HNES online portal and an application pack
- 🕒 Read our [HNES Guidance for Applicants](#) document for further detail on the scheme
- 🕒 Sign up to our [Mailing List](#) for the latest information and updates about the scheme
- 🕒 Read DESNZ's [optimisation guide](#) and watch these [heat network optimisation guidance videos](#) for helpful tips on how to improve your network



Louise Singleton



Katy Ansari



Alison Sanders



Roisin Broomfield



Abigail Chu





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Any Questions?

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